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## The New Tesla Electromagnetics and the Secrets of Electrical Free Energy

By T.E. Bearden

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## **COMMENTS ON THE NEW TESLA ELECTROMAGNETICS**

### **Part I: Discrepancies in Present EM Theory**

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There are at least twenty-two major discrepancies presently existing in conventional electromagnetics theory. This paper presents a summary of those flaws, and is a further commentary on my discussion of scalar longitudinal Tesla waves in a previous paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1981 and 1982.

I particularly wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. One of the two is an experimental genius who can produce items on the bench that do not work by orthodox theory. The second is a master of materials science and electromagnetics theory. I thank them both for their exceptional contributions and stimuli regarding potential shortcomings in present electromagnetics theory, and their forbearance with the many discussions we have held on this and related subjects.

It goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

(1) In present electromagnetics theory, charge and charged mass are falsely made identical. Actually, on a charged particle, the "charge" is the flux of virtual particles on the "bare particle" of observable mass. The charged particle is thus a "system" of true massless charge coupled to a bare chargeless mass. The observable "mass" is static, three-dimensional, and totally spatial. "Charge" is dynamic, four-dimensional or more, virtual and spatiotemporal. Further, the charge and observable mass can be decoupled, contrary to present theory. Decoupled charge -- that is, the absence of mass -- is simply what we presently refer to as "vacuum." Vacuum, spacetime, and massless charge are all identical. Rigorously, we should utilize any of these three as an "ether," as suggested for vacuum by Einstein himself (see



Max Born, Einstein's Theory of Relativity, Revised Edition, Dover Publications, New York, 1965, p. 224). And all three of them are identically anenergy -- not energy, but more fundamental components of energy.

(2) Electrostatic potential is regarded as a purely 3-dimensional spatial stress. Instead, it is the intensity of a many-dimensional (at least four-dimensional) virtual flux and a stress on all four dimensions of spacetime. This is easily seen, once one recognizes that spacetime is identically massless charge. (It is not "filled" with charge; rather, it is charge!) Just as, in a gas under pressure, the accumulation of additional gas further stresses the gas, the accumulation of charge (spacetime) stresses charge (spacetime). Further, if freed from its attachment to mass, charge can flow exclusively in time, exclusively in space, or in any combination of the two. Tesla waves -- which are scalar waves in pure massless charge flux itself -- thus can exhibit extraordinary characteristics that ordinary vector waves do not possess. And Tesla waves have extra dimensional degrees of freedom in which to move, as compared to vector waves. Indeed, one way to visualize a Tesla scalar wave is to regard it as a pure oscillation of time itself.

(3) Voltage and potential are often confused in the electrostatic case, or at least thought of as "composed of the same thing." For that reason, voltage is regarded as "potential drop". This also is not true. Rigorously, the potential is the intensity of the virtual particle flux at a single point -- whether or not there is any mass at the point -- and both the pressure and the point itself are spatiotemporal (4-dimensional), not spatial (3-dimensional) as presently assumed. Voltage represents the spatial intersection of the difference in the potential between two separated spatial points, and always implies at least a miniscule flow of mass current (that is what makes it spatial!). "Voltage" is spatial and depends upon the presence of observable mass flow, while scalar electrostatic potential is spatiotemporal and depends upon the absence of observable mass flow. The two are not even of the same dimensionality.

(4) The charge of vacuum spacetime is assumed to be zero, when in fact it is a very high value. Vacuum has no mass, but it has great massless charge and virtual particle charge flux. For proof that a charged vacuum is the seat of something in motion, see G.M. Graham and D.G. Lahoz, "Observation of static electromagnetic angular momentum in vacuo," Nature, Vol. 285, 15 May 1980, pp. 154-155. In fact, vacuum IS charge, identically, and it is also "spacetime" and at least four-dimensional.

(5) Contrary to its present usage, zero is dimensional and relative in its context. A three-dimensional spatial hole, for example, exists in time. If we model time as a dimension, then the spatial hole has one dimension in 4-space. So a spatial absence is a spatiotemporal presence. In the vacuum 4-space, a spatial nothing is still a something. The "virtual" concept and the mathematical concept of a derivative are simply two present ways of unconsciously addressing this fundamental problem of the dimensional relativity of zero.

(6) The concepts of "space" and "time" imply that spacetime (vacuum) has been separated into two parts. We can only think of a space as "continuing to exist in time " To separate vacuum spacetime into two pieces, an operation is continually required. The operator that accomplishes this splitting operation is the photon interaction, the interaction of vector electromagnetic energy or waves with mass. I have already strongly pointed out this effect and presented a "raindrop model" of first-order physical change itself in my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 128-130.

(7) "Vector magnetic potential" is assumed to be always an aspect of (and connected to) the magnetic field. In fact it is a separate, fundamental field of nature and it can be entirely disconnected from the magnetic field. See Richard P. Feynman et al, The Feynman Lectures on Physics, Addison-Wesley Publishing Co., New York, 1964, Vol. II, pp. 15-8 to 15-14. Curiously, this fact has been proven for years' yet it has been almost completely ignored in the West. The "Vx" operator, when applied to the A-field, makes B-field. If the Vx operator is not applied, the "freed" A-field possesses much-expanded characteristics from those presently allowed in the "bound" theory. Specifically, it becomes a scalar or "shadow vector" field; it is not a normal vector field. (note: for V read inverted capital Delta)

(8) The speed of light in vacuum is assumed to be a fundamental constant of nature. Instead it is a function of the intensity of the massless charge flux (that is, of the magnitude of the electrostatic potential) of the vacuum in which it moves. (Indeed, since vacuum and massless charge are one and the same, one may say that the speed of light is a function of the intensity of the spatiotemporal vacuum!). The higher the flux intensity (charge) of the vacuum, the faster the speed of light in it. This is an observed fact and already shown by hardcore measurements. For example, distinct differences actually exist in the speed of light in vacuo, when measured on the surface of the earth as compared to measurements in space away from planetary masses. In a vacuum on the surface of the earth, light moves significantly faster. For a discussion and the statistics, see B. N. Belyaev, "On Random Fluctuations of the Velocity of Light in Vacuum," Soviet Physics

Journal, No. 11, Nov. 1980, pp. 37-42 (original in Russian; translation by Plenum Publishing Corporation.) The Russians have used this knowledge for over two decades in their strategic psychotronics (energetics) program; yet hardly a single U.S. scientist is aware of the measured variation of  $c$  in vacuo. In fact, most Western scientists simply cannot believe it when it is pointed out to them!

(9) Energy is considered fundamental and equivalent to work. In fact, energy arises from vector processes, and it can be disassembled into more fundamental (anenergy) scalar components, since the vectors can. These scalar components individually can be moved to a distant location without expending work, since one is not moving force vectors. There the scalar components can be joined and reassembled into vectors to provide "free energy" appearing at a distance, with no loss in between the initial and distant points. For proof that a vector field can be replaced by (and considered to be composed of) two scalar fields, see E. T. Whittaker, Proceedings of the London Mathematical Society, Volume 1, 1903, p. 367. By extension, any vector wave can be replaced by two coupled scalar waves.

(10) The classical Poynting vector predicts no longitudinal wave of energy from a time-varying, electrically charged source, In fact, an exact solution of the problem does allow this longitudinal wave. See T. D. Keech and J. F. Corum, "A New Derivation for the Field of a Time-Varying Charge in Einstein's Theory," International Journal of Theoretical Physics, Vol. 20, No. 1, 1981, pp. 63-68 for the proof.

(11) The present concepts of vector and scalar are severely limited, and do not permit the explicit consideration of the internal, finer-grained structures of a vector or a scalar. That is, a fundamental problem exists with the basic assumptions in the vector mathematics itself. The "space" of a vector field, for example, does not have inter-nested sublevels (subspaces) containing finer "shadow vectors" or "virtual vectors," Yet particle physics has already discovered that electrical reality is built that way. Thus one should actually use a "hypernumber" theory after the manner of Charles Musés. A scalar is filled with (and composed of) nested levels of other "spaces" containing vectors, where these sum to "zero" in the ordinary observable frame without an observable vector resultant. In Musés' mathematics, for example, zero has real roots. Real physical devices can be -- and have been -- constructed in accordance with Musés' theory. For an introduction to Musés' profound hypernumbers approach, see Charles Musés' foreword to Jerome Rothstein, Communication Organization and Science, The Falcon's Wing Press, Indian Hills, Colorado, 1958. See also Charles Musés, "Applied Hypernumbers: Computational Concepts," Applied Mathematics and

Computation, Vol. 3, 1976. See also Charles Musés, "Hypernumbers II," Applied Mathematics and Computation, January 1978.

(12) With the expanded Tesla electromagnetics, a new conservation of energy law is required. Let us recapitulate for a moment. The oldest law called for the conservation of mass. The present law calls for the conservation of "mass and energy", but not each separately. If mass is regarded as simply another aspect of energy, then the present law calls for the conservation of energy. However, this assumes that energy is a basic, fundamental concept. Since the energy concept is tied to work and the movement of vector forces, it implicitly assumes "vector movement" to be a "most fundamental" and irreducible concept. But as we pointed out, Whittaker showed that vectors can always be further broken down into more fundamental coupled scalar components. Further, Tesla discovered that these "coupled components" of "energy" can be individually separated, transmitted, processed, rejoined, etc. This directly implies that energy per se need not be conserved. The new law therefore calls for the conservation of anenergy, the components of energy. These components may be coupled into energy, and the energy may be further compacted into mass. It is the sum total of the (anenergy) components -- coupled and uncoupled -- that is conserved, not the matter or the energy per se. Further, this conservation of anenergy is not spatial; rather, it is spatiotemporal in a spacetime of at least four or more dimensions.

(13) Relativity is presently regarded as a theory or statement about fundamental physical reality. In fact, it is only a statement about FIRST ORDER reality -- the reality that emerges from the vector interaction of electromagnetic energy with matter. When we break down the vectors into scalars (shadow vectors or hypervectors), we immediately enter a vastly different, far more fundamental reality. In this reality superluminal velocity, multiple universes, travel back and forth in time, higher dimensions, variation of all "fundamental constants" of nature, materialization and dematerialization, and violation of the "conservation of energy" are all involved. Even our present Aristotlean logic -- fitted to the photon interaction by vector light as the fundamental observation mechanism -- is incapable of describing or modeling this more fundamental reality. Using scalar waves and scalar interactions as much subtler, far less limited observation/detection mechanisms, we must have a new "superrelativity" to describe the expanded electromagnetic reality uncovered by Nikola Tesla.

(14) "Charge" is assumed to be quantized, in addition to always occurring with -- and locked to -- mass. Indeed, charge is not necessarily quantized just as it is not necessarily locked to mass.

Ehrenhaft discovered and reported fractional charges for years, in the 30's and 40's, and was ignored. See P.A.11. Dirac, "Development of the Physicist's Conception of Nature," Symposium on the Development of the Physicist's Conception of Nature, ed. Jagdish Merha, D. Reidel, Boston, 1973, pp. 12-14 for a presentation of some of Ehrenhaft's results. Within the last few years Stanford University researchers also have positively demonstrated the existence of "fractional charge." For a layman's description of their work, see "A Spector Haunting Physics," Science News, Vol. 119, January 31, 1981, pp. 68-69. Indeed, Dirac in his referenced article points out that Millikan himself -- in his original oil drop experiments -- reported one measurement of fractional charge, but discounted it as probably due to error.

(15) Presently, things are always regarded as traveling through normal space. Thus we use or model only the most elementary type of motion -- that performed by vector electromagnetic energy. We do not allow for things to "travel inside the vector flow itself." Yet, actually, there is a second, more subtle flow inside the first, and a third, even more subtle flow inside the second, and so on. We may operate inside, onto, into, and out of energy itself -- and any anenergy component of energy. There are hypervectors and hyperscalars unlimited, within the ordinary vectors and scalars we already know. Further, these "internal flows" can be engineered and utilized, allowing physical reality itself to be directly engineered, almost without limits.

(16) We always assume everything exists in time. Actually, nothing presently measured exists in time, because the physical detection/measurement process of our present instruments destroys time, ripping it off and tossing it away -- and thereby "collapsing the wave function." Present scientific methodology thus is seriously flawed. It does not yield fundamental (spacetime) truth, but only a partial (spatial) truth. This in turn leads to great scientific oversights. For example, mass does not exist in time, but mass x time (masstime) does. A fundamental constant does not exist in time, but the "constant x time" does. Energy does not exist in time, but energy x time (action) does. Even space itself does not exist in time -- spacetime does. We are almost always one dimension short in every observable we model. Yet we persist in thinking spatially, and we have developed instruments that detect and measure spatially only. Such instruments can never measure and detect the phenomenology of the nested substrata of time. By using scalar technology, however, less limited instruments can indeed be constructed -and they have been. With such new instruments, the phenomenology of the new electromagnetics can be explored and an engineering technology developed.

(17) We do not recognize the connection between nested levels of virtual state (particle physics) and orthogonally rotated frames (hyperspaces). Actually the two are identical, as I showed in the appendix to my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 233-235. A virtual particle in the laboratory frame is an observable particle in a hyperspatial frame rotated more than one orthogonal turn away. This of course implies that the hyperspatial velocity of all virtual particles is greater than the speed of light. The particle physicist is already deeply involved in hyperspaces and hyperspatial charge fluxes without realizing it. In other words, he is using tachyons (particles that move faster than light) without realizing it.

(18) Presently quantum mechanics rigorously states that time is not an observable, and therefore it cannot be measured or detected. According to this assumption, one must always infer time from spatial measurements, because all detections and measurements are spatial. With this assumption, our scientists prejudice themselves against even looking for finer, subquantal measurement methodologies and instrumentation. Actually this present limitation is a result of the type of electromagnetics we presently know, where all instruments (the "measurers") have been interacted with by vector electromagnetic energy (light). Every mass that has temperature (and all masses do!) is continually absorbing and emitting photons, and in the process they are continually connecting to time and disconnecting from time. If time is continually being carried away from the detector itself by its emitted photons, then the detector cannot hold and "detect" that which it has just lost. With Tesla electromagnetics, however, the fundamental limitation of our present instruments need not apply. With finer instruments, we can show there are an infinite number of levels to "time", and it is only the "quantum level time" which is continually being lost by vector light (photon) interaction. By using subquantal scalar waves, instruments can move to deeper levels of time -- in which case the upper levels of time ARE measureable and detectable, in contradistinction to the present assumptions.

(19) In the present physics, time is modeled as, and considered to be, a continuous dimension such as length. This is only a gross approximation. Indeed, time is not like continuous "dimension," but more like a series of "stitches," each of which is individually made and then ripped out before the next stitch appears. "Vector light" photons interact one at a time, and it is this interaction with mass that creates quantum change itself. The absorption of a photon -- which is energy x time -- by a spatial mass converts it to masstime: the time was added by the photon. The emission of a photon tears away the time, leaving behind again a spatial mass. It is not accidental, then, that time flows at

the speed of light, for it is light which contains and carries time. It is also not accidental that the photon IS the individual quantum. Since all our instruments presently are continually absorbing and emitting photons, they are all "quantized," and they accordingly "quantize" their detections. This is true because all detection is totally internal to the detector, and the instruments detect only their own internal changes. Since these detections are on a totally granular quantized background, the detections themselves are quantized. The Minkowski model is fundamentally erroneous in its modeling of time, and for that reason relativity and quantum mechanics continue to resist all attempts to successfully combine them, quantum field theory notwithstanding.

(20) Presently, gravitational field and electrical field are considered mutually exclusive. Actually this is also untrue. In 1974, for example, Santilli proved that electrical field and gravitational field indeed are not mutually exclusive. In that case, one is left with two possibilities: (a) they are totally the same thing, or (b) they are partially the same thing. For the proof, see R. M. Santilli, "Partons and Gravitation: Some Puzzling Questions," Annals of Physics, Vol. 83, No. 1, March 1974. With the new Tesla electromagnetics, pure scalar waves in time itself can be produced electrically, and electrostatics (when the charge has been separated from the mass) becomes a "magic" tool capable of directly affecting and altering anything that exists in time--including gravitational field. Antigravity and the inertial drive are immediate and direct consequences of the new electromagnetics.

(21) Presently, mind is considered metaphysical, not a part of physics, and not affected by physical means. Literally, the prevailing belief of Western scientists is that man is a mechanical robot -- even though relativity depends entirely upon the idea of the "observer." Western science today thus has essentially become dogmatic, and in this respect borders on a religion. Since this "religion," so to speak, is now fairly well entrenched in its power in the state, Western science is turning itself into an oligarchy. But mind occupies time, and when we measure and affect time we can directly measure and affect mind itself. In the new electromagnetics, then, man regains his dignity and his humanity by restoring the reality of mind and thought to science. In my book, The Excalibur Briefing, I have already pointed out the reality of mind and a simplified way in which it can be modeled to the first order. With scalar wave instruments, the reality of mind and thought can be measured in the laboratory, and parapsychology becomes a working, engineering, scientific discipline.

(22) Multiple-valued basic dimensional functions are either not permitted or severely discouraged in the present theory. For one thing, integrals of multiple valued derivative functions have the annoying



habit of "blowing up" and yielding erroneous answers, or none at all. And we certainly do not allow multiple types of time! This leads to the absurdity of the present interpretation of relativity which permits only a single observer (and a single observation) at a time. So if one believes as "absurd" a thing as the fact that more than one person can observe an apple at the same time, the present physics fails. However, the acceptance of such a simple proposition as multiple simultaneous observation leads to a physics so bizarre and incredible that most Western physicists have been unable to tolerate it, much less examine its consequences. In the physics that emerges from multiple simultaneous observation, all possibilities are real and physical. There are an infinite number of worlds, orthogonal to one another, and each world is continually splitting into additional such "worlds" at a stupendous rate. Nonetheless, this physics was worked out by Everett for his doctoral thesis in 1956, and the thesis was published in 1957. (See Hugh Everett, III, The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition, with papers by J. A. Wheeler, B.S. DeWitt, L. N. Cooper and D. Van Vechten, and N. Graham; eds. Bryce S. Dewitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.) Even though it is bizarre, Everett's physics is entirely consistent with all the present experimental basis of physics. The present electromagnetic theory is constructed for only a single "world" or universe -- or "level." The expanded theory, on the other hand, contains multiply nested levels of virtual state charge -- and these levels are identically the same as orthogonal universes, or "hyperframes." Multiple kinds -- and values -- of time also exist. The new concept differs from Everett's, however, in that the orthogonal universes intercommunicate in the virtual state. That is, an observable in one universe is always a virtual quantity in each of the other universes. Thus one can have multi-level "continuities" and "discontinuities" simultaneously, without logical conflict. It is precisely these levels of charge -- these levels of scalar vacuum -- that lace together the discontinuous quanta generated by the interaction of vector light with mass.

However, to understand the new electromagnetic reality, one requires a new, expanded logic which contains the old Aristotlean logic as a subset. I have already pointed out the new logic in my paper, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," 1979, available from the National Technical Information Center, AD-A071032.

Even as logic is extended, quantum mechanics, quantum electrodynamics, and relativity are drastically changed by the Tesla electromagnetics, as I pointed out in my paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1580

Magnolia, Millbrae, California, 94030, 1980.

The present electromagnetics is just a special case of a much more fundamental electromagnetics discovered by Nikola Tesla, just as Newtonian physics is a special case of relativistic physics. But in the electromagnetics case, the differences between the old and the new are far more drastic and profound.

### ADDITIONAL REFERENCES

1, Boren, Dr. Lawrence Milton, "Discovery of the Fundamental Magnetic Charge (Arising from the new Conservation of Magnetic Energy)," 1981/82 (private communication). Dr. Boren has a cogent argument that the positron is the fundamental unit of magnetic charge. His theory thus assigns fundamentally different natures to positive charge and negative charge. In support of Dr. Boren, one should point out that the "positive" end of circuits can simply be "less negative" than the "negative" end. In other words, the circuit works simply from higher accumulation of negative charges (the "negative" end) to a lesser accumulation of negative charges (the "positive" end). Nowhere need there be positive charges (protons, positrons, etc.) to make the circuit work. Dr. Boren's theory, though dramatic at first encounter, nonetheless bears close and meticulous examination -- particularly since he has been able to gather experimental data which support his theory and disagree with present theory.

2. Eagle, Albert, "An Alternative Explanation of Relativity Phenomena," *Philosophical Magazine and Journal of Science*, No. 191, December 1939, pp. 694-701.

3. Ehrenhaft, Felix and Wasser, Emanuel, "Determination of the Size and Weight of Single Submicroscopic Spheres of the Order of Magnitude  $r = 4 \times 10^{-5}$  cm. to  $5 \times 10^{-6}$  cm., as well as the Production of Real Images of Submicroscopic Particles by means of Ultraviolet Light," *Phil. Mag. and Jour. of Sci.*, Vol. II (Seventh Series), No. 7, July 1926, pp. 30-51.

4. Ehrenhaft, Felix and Wasser, Emanuel, "New Evidence of the Existence of Charges smaller than the Electron - (a) The Micromagnet; (b) The Law of Resistance; (c) The Computation of Errors of the Method," *Phil. Mag. and Jour. of Sci.*, Vol. V (Seventh Series), No. 28, February 1928, pp. 225-241.

5. See also Ehrenhaft's last paper dealing with the electronic charge, in *Philosophy of Science*, Vol. 8, 1941, p. 403.

6. McGregor, Donald Rait, The Inertia of the Vacuum: A New Foundation for Theoretical Physics, Exposition Press, Smithtown, NY, First Edition, 1981, pp. 15-20.
7. Ignat'ev, Yu. G. and Balakin, A. B., "Nonlinear Gravitational Waves in Plasma," Soviet Physics Journal, Vol. 24, No. 7, July 1981, (U.S. Translation, Consultants Bureau, NY, January 1982), pp. 593-597.
8. Yater, Joseph C., "Relation of the second law of thermodynamics to the power conversion of energy fluctuations," Phys. Review A, Vol. 20, no. 4, October 1979, pp. 1614-1618.
9. DeSantis, Romano M. et al, "On the Analysis of Feedback Systems With a Multipower Open Loop Chain," October 1973, available through the Defense Technical Information Center (AD 773188),
10. Graneau, Peter, "Electromagnetic jet-propulsion in the direction of current flow," Nature, Vol. 295, 28 January 1982, pp. 311-312.
11. "Gravity and acceleration aren't always equivalent," New Scientist, 17 September 1981, p. 723.
12. Gonyaev, V. V , "Experimental Determination of the Free-Fall Acceleration of a Relativistic Charged Particle. II. A Cylindrical Solenoid in a Time-Independent Field of Inertial Forces," Izvestiya VUZ, Fizika, No. 7, 1979, pp. 28-32. English Translation: Soviet Physics Journal, No. 7, 1979, pp. 829-833. If one understands the new, expanded electromagnetics, this Soviet paper indicates a means of generating antigravity and pure inertial fields.
13. R. Schaffranke, "The Development of Post-Relativistic Concepts in Physics and Advanced Technology Abroad," Energy Unlimited, No. 12, Winter 1981, pp. 15-20.
14. F. K. Preikschat, A Critical Look at the Theory of Relativity, Library of Congress Catalogue No. 77-670044. Extensive compilation of measurements of the speed of light. Clearly shows the speed of light is not constant but changes, sometimes even daily.

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## COMMENTS ON THE NEW TESLA ELECTROMAGNETICS

### Part II: The Secret of Electrical Free Energy

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Again I wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. I thank them both for their exceptional contributions and stimuli, and their forbearance with the many discussions we have held on this and related subjects.

Also, it goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

Present electromagnetic theory is only a special case of the much more fundamental electromagnetism discovered by Nikola Tesla at the turn of the century.

Pure vacuum is pure charge flux, without mass. The vacuum has a very high electrical potential -- something on the order of 200 million volts, with respect to a hypothetical zero charge.

Thus in an ordinary electrical circuit, each point of the "ground" -- which has the same potential as the vacuum -- actually has a non-zero absolute potential. This circuit ground has a value of zero only with respect to something else which has the same absolute electrical potential.

Voltage, which is always associated with a flow of electrical "mass" current (even if only a miniscule flow), is, by definition, a difference dropped in potential when a charge mass moves between two spatially separated points. What we have termed "electrical current" only flows where there is a suitable conducting medium between things which have a difference in absolute potential. Furthermore, between any two points in any material, there is considered to exist a finite resistance -- if we apply a voltage and have a mass current flowing between the two points! The simple statement that  $V = IR$  irrevocably ties together voltage drop, mass current, and resistance between two points. Rigorously, to have one of the three is to have them all. To lose one is to lose all three. Immediately we see a major error in present theory: One can have a "difference in scalar potential" between two points without having a "voltage drop" between them. Specifically, if no mass current flows between them, no resistance exists between them, and no voltage drop exists between them.

In the same fashion, one can have a "scalar wave" through the

In the same fashion, one can have a "scalar wave" through the vacuum without a voltage wave. In that case, the wave has no E-field and no H-field. The only reason one has an E-field

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around a statically charged object is because the charged electrons accumulated on the object are actually in violent motion. It is this motion of the charged masses that produces E-field -- as well as H-field whenever that entire E-field ensemble moves through laboratory space.

Now let us reason together in the "approximate" manner utilized in present electromagnetic theory. For example, let us examine a bird sitting on a high tension line.

The bird sits on the high tension line without a flow of mass electricity, because there is no significant difference in potential drop between the bird and the line. Specifically, between the bird's two feet -- each in contact with a different portion of the line -- there exists no potential difference. This is true even though, with respect to the vacuum, each foot is at a potential that would be "100,000 volts higher," were a mass current flowing. And it is true even though the absolute potential of each foot may be some 200.1 million "volts," were a mass current flowing.

Now an interesting thing happens to the bird when he flies through the air to light upon the high tension wire. As he flies toward the wire, he is flying through the massless electrostatic potential field of the wire, for that field extends an infinite distance away from the wire. The electrostatic potential field -- pure  $\phi$ -field -- is actually the spatio-temporal intensity of the massless charge at a point. In other words, as the bird flies to the wire, he flies into an increasing "massless charge" potential, building up to 100,000 "volts" higher than the earth. However, very little (if any) "mass flow" potential difference is experienced upon his body in approaching the wire, and so essentially no "charged mass currents" are induced in his body. Thus the little flier safely navigates into the teeth of a very high electrostatic potential, lights upon the wire, and is not "fried" in the process. When he lights on the wire, his body has reached the electrostatic potential that each foot's contact point has. Again, there is no mass current flow. But his body is immersed in an increased flux of massless charge -- which is what the electrostatic potential represents. And each "virtual particle" flow in that charge potential represents a "massless (scalar)" electrical current.

The point is, one can have any amount of massless charge flow -- "scalar" current -- without any mechanical work being done in the system. All electrical work in a circuit is done against the physical mass of the charged masses that flow. Rigorously, force is defined as the time rate of change of momentum. Even in the relativistic case where  $F = ma + v(dm/dt)$ , change of momentum requires mass movement. No mechanical work, and hence no energy, is expended by massless charge flow.

That is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work

that is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work on our systems, and expends none of its very high "potential energy." It is exactly the same as the bird which flew into an

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increasing scalar field as it approached the high tension wire -- no work was done upon the bird by the increasing scalar flux currents encountered by its body.

By existing "in the vacuum," so to speak, we (the whole earth) are as birds sitting on a high tension line! Until we create significant difference in potential, via our present electromagnetic circuits, no current can flow -- anywhere. Even if we produce potential differences, we must have a conductor and charged masses to flow, if we wish to produce mechanical work. Presently our electromagnetic theory allows us to create a difference in potential within different parts of a circuit, but only by moving and shifting charged mass. We therefore have to do work on this electrical mass in moving it around, and we only get back the work we have put into the circuit. In other words, presently all we do is "pump" electrical mass.

Now notice what would happen to the bird on the line if we substantially "pulsed" the potential on the line. Suppose we "pulsed" it such that the bird's physical system -- considered as a circuit containing a capacitance, a resistance, an inductance, and many free electrons -- became resonant to the pulsing frequency. In that case the "bird system" would resonate, and a great deal of electrical mass would surge back and forth in the body of the bird. In the bird's body, voltage would exist, charged mass current would flow, work would be done, and the bird would be electrocuted.

Also, note that, without mass movement, electromagnetic vector fields are not produced (and a portion of the difficulty lies with the actual vector mathematics itself). Scalar (nonvector) waves continually penetrate "space" where there is no mass movement. This means there can exist a " $\Delta\phi$ " without a voltage or an E-field. The present theory does not allow this, because it always uses "q" (charge) to be charged mass. Briefly, without belaboring the point, let us just say that it is the mechanical spin of the individual charged particle -- such as the electron -- which "entangles" or "knits together" or "couples" independent scalar waves into vector waves. A vector wave is simply two coupled scalar waves. The entire force field concept -- such as the E-field and the B-field -- is operationally defined in terms of the force exhibited on a test particle, or test mass. Rigorously, an E-field does not exist as a force field in vacuum, but as two coupled scalar  $\phi$ -fields "tumbling about each other." When these two coupled, tumbling fields meet a spinning electron, e.g., the force emerges on the electron mass. In short, movement of a rotating mass changes  $\Delta\phi$  to "voltage", creating the V/I/R triad.

By "accumulating charged mass particles" -- such as electrons -- one certainly can increase the value of  $\phi$ , which represents the charge intensity or "scalar electrostatic potential." However, that is not the only way to increase it. Resonance and rotation of charged masses can also be appropriately employed to vary the vacuum charge potential  $\phi$ , under the proper circumstances.

or charged masses can also be appropriately employed to vary the vacuum charge potential  $\Phi$ , under the proper circumstances.

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By the correct application of rotary principles and Tesla electromagnetic theory, it is possible to oscillate -- and change -- the vacuum potential itself, in one part of an electrical system. Thus by correct procedures a part of a system can be electrically altered so that the absolute value of its "ground" (vacuum) potential differs significantly from the normal vacuum-ground potential of the remainder of the circuit. In other words, we shift the vacuum-ground potential of part of the circuit by oscillating the massless vacuum charge itself, and in so doing we gain a substantial, oscillatory electrical potential difference between that part of the circuit and the normal ground potential of the rest of the system. Then we connect the two parts of the system by means of a conductor containing a load in the middle.

In every conductor, a large number of "free electrons" are available. If we oscillate the actual vacuum charge itself, unlimited additional free electrons also become available from the Dirac sea, since partial "unstripping" of the negative energy wells (each containing an electron) occurs. This "unstripping" of the potential of the well is due to vacuum potential oscillation, which oscillates time as well as space. To a negative energy well (positive time), the oscillation of its "time stream" increases the well's negative potential during one half-cycle and decreases its potential for the other half-cycle. Thus during half the oscillatory cycle, negative energy electrons may be lifted from the Dirac sea if the oscillation is sufficiently intense.

Therefore we obtain an attendant voltage and flow of mass current through the load. This voltage and current, by the way, are essentially limitless, and are free for the asking, assuming the proper "vacuum oscillation" is initiated and maintained so that electrons are continually being lifted from the Dirac sea by the time oscillations, and fed into the circuit.

Standard electromagnetic theory assumes that the vacuum potential is zero. It does not recognize the existence of massless charge, separated from charged mass. Therefore, orthodox scientists have never looked for a way to engineer the vacuum, because they have not realized it is composed of pure massless charge. Electrical physics has almost hopelessly confused charge and charged mass, thereby eliminating scalar longitudinal electrostatic waves. Expressed in the bird/high tension line analogy, the present electromagnetic theory restricts us to walking along the high tension line, laboriously carrying small batteries and power units, unaware of the limitless, surging power beneath our very feet.

Electromagnetically, we have been rather like one of the five blind men who touched an elephant. We have only touched one small portion of the electromagnetism "elephant," yet we thought we had grasped the entire beast.

## OVERTURE TO A NEW AGE TECHNOLOGY

From an Update by Dr. Rolf Schaffranke

" ... as there has been a steady erosion in U. S. activity in the basic sciences, there has been an increase in the level of such activity in Western Europe and Japan. If that continues, we are in danger of losing our position of scientific leadership."

Val. L. Fitch, Prof. of Physics at  
Princeton University, in an interview with  
*U.S. News & World Report*, June 21, 1982.

### West Germany:

The prototype of the first motorcycle equipped with a "flux-motor" (the inventor's designation for a tachion field converter or gravity-field generator) of 2 KW output has completed a test run of approximately 20,000 km without repairs. Principle of operation: The T-converter is constantly recharging the electrical power battery of the vehicle, resulting in an operation which is noiseless, fuelless and pollution-free. After completion of all scheduled tests, a public demonstration to the press is planned within a few weeks from the time of this writing. (June 17, 1982) See photo, Pg. 19. A new factory for the production of gravity-energy-field converters in the town of Oldenburg is scheduled to produce individual home heating units. The design of automobile power plants based on the same principle is also in preparation. Reported efficiency factors of several hundred percent are anticipated.

### Japan:

Mazda continues research on the "magnetic Wankel engine" (45 HP) for electric automobiles, based on the principle of Kure Tekko. The gravity research of Prof. S. Seike is now sponsored by Hitachi, after millions of Japanese received updated information via popular science magazines. It is interesting to note that Saudi Arabia has decided to invest \$100 million in Hitachi stocks.

### France:

The "Kromrey" converter has completed tests at the Institute for Magneto-statics, University of Strasbourg. One prototype delivered 700 Watts at 600-1200 RPM, at a fairly uniform rate. However, France, as the No. 1 developer of nuclear energy in Europe, is still reluctant to concentrate her energies on a revolutionary new technology which could result in drastic curtailments of her well-developed nuclear industry and associated exports. See photos, Pg. 22.

### Denmark:

Dr. Jensen, physicist at the University of Copenhagen, reported test results of 300% efficiency with a specially designed, 5-coil transformer in connection

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with a tachion field converter based on the principle of the "N" machine. First reports were presented at the International Conference on Energy Technology in Hannover, Nov., 1980.

England / USA:

A "bullet train" based on the magnetic levitation system of British Prof. Eric Laithwaite is now under consideration for construction between Los Angeles and San Diego. Japan and West Germany are already operating high speed experimental trains, suspended magnetically to reduce friction, that may soon attain speeds of more than 200 miles per hour. The Laithwaite-Eastham method would use electromagnetic forcefields induced over an aluminum-topped concrete track. The project will probably be headed by a Japanese company as the prime contractor.

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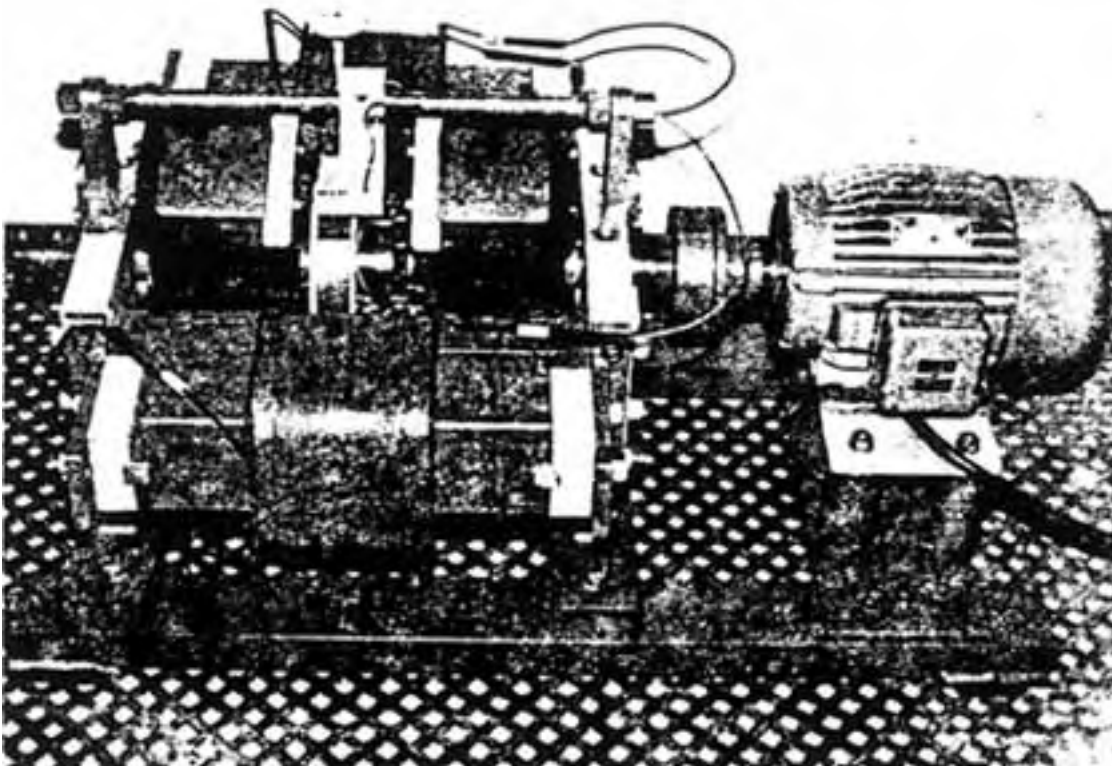
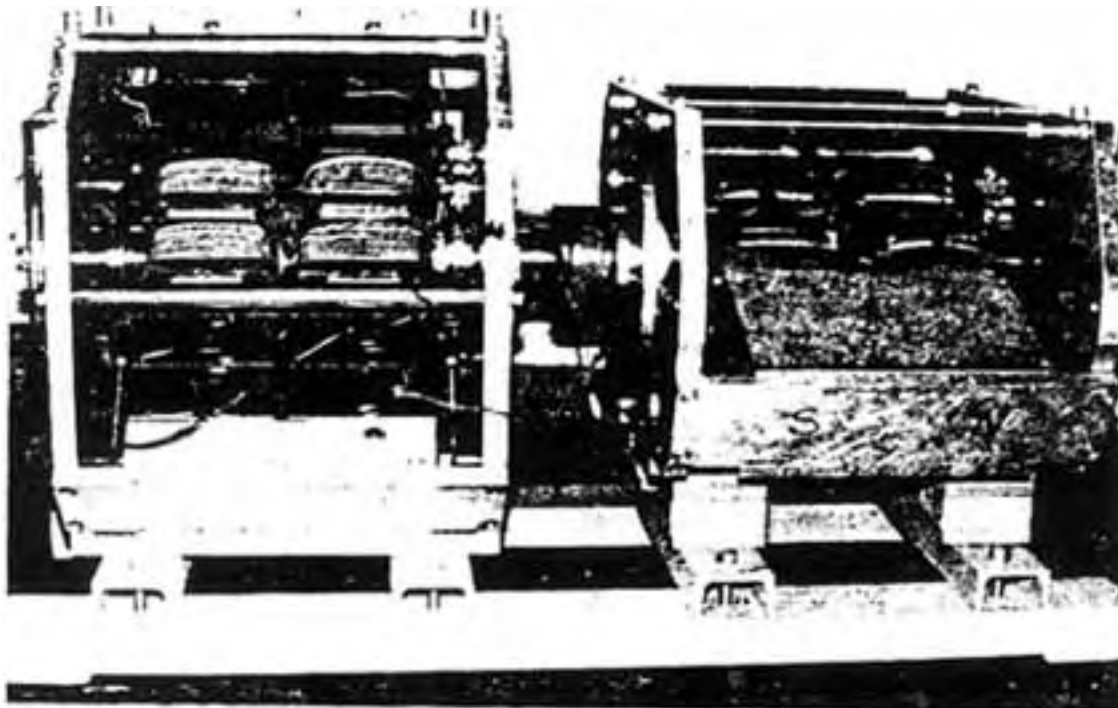


West German gravity-field unit in operation

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Swiss-French gravity field converter system "Kromrey"

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## REVIEW AND OUTLOOK

### THE DEVELOPMENT OF POST-RELATIVISTIC CONCEPTS IN PHYSICS AND ADVANCED TECHNOLOGY ABROAD

Rolf Schaffranke, Dr. h. c.  
Member A.I.A.A.

*This paper was presented at The First  
International Symposium on Non-Conventional  
Energy Technology, Toronto, Ontario, Canada,  
Oct. 23-24, 1981. (Reprinted by permission of  
the author.)*

"Far more harm is done to the progress of science by  
skepticism than by gullibility". (Dr. Robert Wood, Director  
R & D, McDonnell-Douglas Astronautics Div., Cal.) NASA  
- Langley Research Center in Hampton, VA is named after  
Samuel Pierpont Langley (1834-1906), an American  
astronomer, engineer and architect.

Langley worked out the aerodynamic principles for  
manned flight. In principal, his calculations were correct;  
but the structural materials he used for wings and engines  
were ,insufficient. In December of 1903, the *New York  
Times* published an editorial complaining about his foolish  
dream and the associated waste of government money. The  
editorial predicted that: "man would not fly for a thousand  
years".

Only 9 days after the editorial was published, the Wright  
brothers made their first successful powered flight at Kitty  
Hawk. (Dec. 17, 1903). But, again, as late as 1905, the  
*Scientific American* suggested the happening was a hoax -  
two years after the event which changed history. Let's reflect  
for a moment on the fact that only in a single lifetime, man  
has journeyed from Kitty Hawk to the surface of the moon!

The analogy to the problem of alternative energies and  
their development is, of course, obvious. We try to educate  
the preaching orthodoxies. But orthodox solutions are no  
longer enough. Our system of education can only give from

the past. The present must operate on inspiration and intuition, or the future will be lost. The past no longer has enough of the answers for arising crises for which there are no precedents. To keep pace with the requirements of the future, we must begin to teach not only what to learn, but how to learn, how to analyze, how to search for the truth. Only then will be able to recognize discrepancies between experiment and dogma and to cope with problems which appear to be just beyond the corner. History has shown again and again that no single individual can rise above the species without being persecuted. The reasons for that are:

Some of the most powerful forces in homo sapiens have always been

Greed, Pride, Ego, Fear and, above all, the Desire to Control Others,

A brand new German book titled *Energy in Abundance*, which is evidently creating a considerable impact in the European community, challenges the contemporary high

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priests of science, the "Guardians of the Status Quo" and uncovers an almost incredible narrowmindedness and ignorance in science, politics and economics, "approaching the criminal" as the author puts it. The contemporary waste of genuine intellectual creativity is castigated as a cultural scandal approaching barbarism. The book stresses that a truly promising approach to the so-called energy crisis requires a fundamental and thorough re-evaluation of the theories, dogmas and axioms which form the basis of present day science and the foundation of our technology. As in the past, the formidable inertia of the establishment is not only based on inaccurate, incomplete and outdated information, but also on its reluctance to accept new ideas. The honest search for the truth first requires that we first demythologize generally accepted claims of so-called experts of the past. An excellent introduction to this problem is the article "Resistance by Scientists to Scientific Discovery" by Bernard Barber in *Science*, Vol. 134, pp. 596-602, of Sept. 1961, or the paper by Stephen C. Brush in *Science* of March, 1974, titled "Should the History of Science be Rated 'X'?", culminating with a statement of Huxley:

"Authorities", "disciples", and "schools" are the curse of science and do more to interfere with the work of the scientific spirit than all its enemies".

The former astronaut, Capt. Edgar D. Mitchell, one of our famous contemporaries, also stressed the need for an open mind!

"History has shown time and again that important scientific discoveries generally happen only when someone steps outside the limits of his traditional discipline and looks at something from a fresh point of view. Then what should have been obvious all along comes into focus".

Those of us who are familiar with the pioneering efforts of Dr. Hans Nieper of Hanover will appreciate this statement by an ex-astronaut.

One of the most important cornerstones of today's scientific dogmas dates back to 1905, more than 3/4 of a century ago. Lest we forget, television and radar, jet-planes and cyclotrons, moonrockets and close-up photos of the planets of our solar system were nothing but wild fantasies of science fiction then.

The speed of light was assumed to be constant and the maximum possible speed in the universe; vacuum was to be a total void. In reality, the speed of light as measured in the Michelson-Morley experiments was not at all the same in all directions. The "ether-drift" still amounted to the respectable velocity of about five miles per second, and similar results were obtained by D. C. Miller in a series of experiments extending over twenty-five years, from 1902 to 1926.

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"Even worse, the measurements showed such marked discrepancies with previous results as to occasion a distress call to the U. S. Coast & Geodetic Survey, whose surveyors repeatedly remeasured the length of the tube and found no error there," reported the *Popular Science Monthly* March 1934 issue. And it continued: "More recently, speed of light observations only emphasized the apparent erratic behavior of the light beam that the scientists were attempting to plot. On some days it seems to travel faster than others by as much as 12 miles a second. Its speed seems to vary with the season, and also in a mysterious shorter cycle lasting about 2 weeks. Finally, the scientists ended by taking an average of all the readings which has just been announced as 186,271 miles per second".

In his paper "A Critical Look At the Theory of Relativity", Library of Congress Cat. No. 77-670044, F. K. Preikschat compiled all known light velocity measurements during the past 300 years or so, from Olaf Roemer in 1676 to the Laser measurements conducted by the National Bureau of Standards (USA) in 1972.

Of the 27 experiments undertaken in this field, 18 of them after the turn of this century, it must be concluded that the velocity of light as measured within the reference system of our earth has changed as much as plus/minus 50 km/sec, during the past century. Preikschat plotted a curve of these deviations and suggests a possible relationship between sunspot activities and changes of the earth magnetic field during the time period in question.

The "universal constancy of light" appears, therefore, as somewhat shaky "empirical evidence" for our cornerstone in physics, especially since Einstein himself has gone on record as saying:

"If a single one of the conclusions drawn from it (relativity theory) proves to be wrong, it must be given up; to modify it without destroying the whole structure seems to be impossible".

Another modification concerns the definition for the term "vacuum" in physics, as documented by a paper in the *American Scientist*, March-April 1980, titled "Is The Vacuum Really Empty?" by Prof. Walter Greiner, University of Frankfurt, BRD, and Prof. Joseph H. Hamilton, Vanderbilt University, Nashville, Tenn.

The authors conclude that a neutral vacuum is by no means as "empty" as previously claimed in our textbooks, and suggests a new definition as follows:

"The vacuum is the lowest stable state that a region of space can have while being penetrated by certain fields".

Because of the tremendous time lag in our educational system, many research

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projects and their ensuing experimental data have been withheld from public scrutiny. The scientific community tends to have a vested interest in preserving the system it created and of which it is a part. It responds to new situations through the coloration of this attachment. A case in point are the carefully conducted experiments of T. T. Brown with charged bodies in a high vacuum, as described in my booklet *Ether Technology* (1977). These experiments suggest the actual presence of certain fields in vacuum, whether we call them gravitational field, tachion-field, ether-field, neutrino or Fermi-sea, etc. is of secondary importance at this moment. Although Brown spent, reportedly, more than \$200,000 of his own funds over several decades on such experiments, he was nevertheless unable to have the results published in the scientific media of America.

Things are even worse when it comes to experiments conducted abroad, which often tend to confirm disregarded experimental results on this continent, as we shall see shortly. To highlight the wide discrepancies between orthodox (and obsolete) dogmas and actual, physical realities pertaining to the true subatomic structures as we know them to be today, let us briefly review the structure of the matter:

A molecule is the smallest division of a substance. Further division would cause it to cease being a substance. The smallest of true molecules can be illustrated when we use the globe of the earth for our standard. If a single drop of water were magnified until it was as big as the earth, each molecule would be about the size of a TENNIS BALL.

On the next step down, an atom is the unit which makes up the nature of the molecule, consisting of the nucleus and the surrounding electrons to render the atom "stable". An atom of hydrogen contains one proton and one electron to balance or neutralize the proton. Matter then is divisible into electrons and protons. But - and here comes the rub: Between electrons and protons are spaces so vast, in comparison with the masses of each, that, if the proton in the carbon atom were the size of a golf ball hanging from the ceiling of the great hall at Pennsylvania Station in New York, its electrons would be represented by six small wasps winging in a little knot against the four walls of the gigantic structure of the building! In effect, one could claim there is little final solidity of substance to anything: The universe consists of "emptiness", charged with electrical energy! If we translate the above to the measurements and terminology of the physicist and "magnify" the atom mathematically, with all its distances and dimensions kept in proportion so that the orbit of the electron would have a diameter equal to that of the earth about the sun, approximately 184 million miles, the diameter of the electron itself would only be 2,000 miles, and the diameter of the nucleus, where

electron itself would only be 2,000 miles, and the diameter of the nucleus, where

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mass and weight of the atom are truly concentrated, can be taken as 2 miles only. We thus obtain a picture of a central mass with a diameter of 2 miles (nucleus), another object with a diameter of 2,000 miles (the electron, in the case of the hydrogen atom) at a distance of 92 million miles away from it, orbiting the nucleus. Evidently, there is plenty of room inside this system. And "room" is not a vacuum, it is not nothingness, but space itself, spatial energy, a field which can be identified with the ether of the past - and of the future. Nobel prize winner, Max Planck, during a lecture in Florence, Italy, once made a truly remarkable statement which describes the problem facing the physicist today:

"As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell you as the result of my research about the atoms this much:

'THERE IS NO MATTER AS SUCH!'

All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together. ... We must assume behind this force the existence of a conscious and intelligent MIND. This mind is the matrix of all matter".

This cosmic matrix is needed if we want to explain "action at a distance", lines of force, stresses, a magnetic field and so on. When the concept of the ether was abandoned, it had to be replaced by the concept of "space" instead. In reality, we merely switched terminology. We used to say that "ether fills all Space". But "filling" is not exactly the descriptive word to use. Perhaps we should rather define it: "Ether is a condition of space in which electrical manifestations for the atomic construction of materials is possible". This primordial energy is "free" or in an uncondensed state. It exists in interstellar space but remains unrecognizable until it begins to coagulate or gets into a vortex pattern. It constitutes the formative field force of nature, an immense reservoir of latent energy.

The claim of our textbooks that the Michelson-Morley experiment "disproved" the existence of the ether is incorrect. It merely disproved the existence of a noticeable ether drift or drag. As an analogy, if somebody would postulate that the absence of wind disproves the existence of the atmosphere around our planet, the fallacy of this postulate would be immediately apparent to all.

"Michelson and Morley centered their attention on the Earth's orbital velocity (30 km per second). They had no knowledge of the existence of galaxies; of motions of galaxies in relation to each other; of the motion of our solar system in our galaxy..... Their negative results are explainable on the basis of pre-1900 classical mechanics, so provide no proof of the absence of ether or Louis de Broglie's

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'subquantum medium'. Thus, the limited information available to Michelson and Einstein is emphasized by recent findings, particularly in astrophysics", writes Dr. H. C. Dudley in the *Bulletin of the Atomic Scientists*, January, 1975, under the title "Michelson's Hunch Was Right". And Dr. Dudley continues: "In fact, 1929 saw Michelson still attempting to experimentally demonstrate the ether, which his intuition and reasoning told him ought to be present".

"Today most persons are largely unaware that the ether concept began to be seriously reexamined by two of physics most notable theoreticians, Paul Dirac in 1951 and de Broglie in 1959, both Nobel laureates. The ether is now being called the "neutrino sea" by astrophysicists, and has been characterized as an energy-rich particulate, subquantum medium. A rather voluminous literature on the subject is accumulating as indicated by a recent review, *The Cosmic Neutrino*, with 665 references covering only the period 1965-1972.....It appears that an open-minded reexamination of this area of physics is long overdue in order to open up new avenues of approach to this pressing problem".

Michelson, Dirac, de Broglie were not the only Nobel prize winners in favor of a reexamination of the ether question. Others were Stark, Arrhenius, A. H. Compton, Lenard, H. Yukawa, and Frederick Soddy, the British scientist who, during the convention of Nobel laureates in Lindau, 1954, described the current dogmas in physics as "an orgy of amateur physics" and "arrogant swindle" - with particular emphasis on the theory of relativity. ("The Wider Aspects of the Discovery of Atomic Disintegration", New World Publications, St. Stephens House, Westminster S.W.1.)

It remained largely unknown, even among physicists, that Einstein himself had serious doubts. In 1949, he wrote to his old friend, Maurice Solovine, who congratulated him on his 70th birthday:

"Now you think that I am looking back at my life's work with calm satisfaction. But, on closer look, it is quite different. There is not a single concept of which I am convinced that it will stand firm and I am not sure if I was on the right track after all".

And one of my Canadian friends who I believe is present here today stated quite correctly in a letter to me:

"The myths around Einstein are really not of his making as he himself often questioned his own conclusions and I felt he was quite aware of his own limitations which others were covering up. The physicists protect their members much the same way that the medical profession protects its own."

The purpose of these remarks is not to spark another controversy about the merits of the theories of relativity. Rather, they want to show that so-called

merits of the theories of relativity. Rather, they want to show that so-called

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"scientific evidence" is a rather elastic term and that "verification" is always a relative affair. Or, as K. R. Popper so aptly put it:

"Only in our subjective experience of conviction, in our subjective faith, can we be 'absolutely certain'".

This symposium presents an excellent overview of research and experiments reported from English speaking countries, or experiments published in the English language, as for instance from Japan. However, as Dr. Tenhaeff from Holland has formulated the problem,

"It is important to pay attention to publications of colleagues in other countries. In the Netherlands and Germany, every academically educated man or woman knows at least three foreign languages. English and American authors only pay attention to material in English. In my opinion, this leads to an 'impoverishment' which puts a drag in science. Some seem very chauvinistic and seem to believe that only the researches done in their country are important. I regret this. Science is international, and international cooperation is of the greatest importance in science".

In presenting some brief reports from abroad, I shall attempt to bring corroborative evidence in support of alternative technology developments discussed during our meeting here in Toronto. Let me start with the most sensitive and secretive society, with Russia.

In his German original of the paper "Some Remarks on the Shielding Theory of Gravity", which was published in the Hanover Proceedings in more detail than the English abstract, Dr. Hans Nieper mentioned the Berlin engineer Levetzow, who was one of the first to postulate a combination pressure and shielding theory for the phenomena of gravity. Levetzow was soon overshadowed by the rising star of Albert Einstein, but one of his followers, Horst Pinkell, went to Russia in 1928 as an exchange student - and never returned. Together with Russian scientists, he was asked to prove the actual existence of the cosmic radiations postulated by Levetzow, now designated as neutrino sea or "tachion field". The work was done in Sterlitamak, South of the Ural mountains, and in 1938, sporadic reports reached the West about the discovery of extremely short corpuscular waves by Pinkell and Gorjew. These were the long sought "Hemmstrahlen" or drag waves associated with gravity. Rumors have it that a metal alloy was soon developed which acted as a drag wave polarisor and, in 1947, agents reported experimental Russian aircraft using this discovery. In 1951, a former German Junkers aircraft engineer reported about his activity pertaining to a super-secret project code named COW-7 in Siberia, a disk-shaped craft which could rise vertically and which belonged to the

Siberia, a disk-shaped craft which could rise vertically and which belonged to the

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secret weapons then developed by the Soviets. Whether it was related to the Canadian AVRO project or something entirely different remained unknown, only the Lev-etzow gravity theory was assumed in connection with the activity in question.

Japan: My esteemed friend, Prof. Seike, who kept me informed about the research conducted by him and his co-workers, surprised me once with a significant statement, which I feel is important to repeat for the benefit of frustrated researchers on this side of the Pacific: "In the early stage of my studies, physicists could not understand what I was doing, while actors and actresses did so by intuition". It was the private support of about 800 individual artists, etc., in Japan which allowed Seike to work, experiment and publish his findings, and not the support of the Japanese equivalent of a National Science Foundation or a similar bureaucratic institution in that country. Again and again, I was surprised how quickly and eagerly American experiments, as for instance the almost forgotten "Ionocraft" of the late Major de Seversky, were duplicated and explored even in Japanese secondary schools. Admiral Rickover has more than once complained about our intellectual complacency: "As a nation, we seem addicted to 'spectatoritis'. We sit in the bleachers and let the game of life unfold before us".

The results are known: The Japanese have achieved top position in science and technology, and not only with tachion beams melting stones, producing "biased" water with a freezing point of minus 4 degrees Celsius, and a G-power generator obtaining 400 V DC output from a 10 V input driving source. I wish to take this opportunity to thank Prof. Seike for sharing his work with us in this country, and wish him the best of success for the future.

France: The work of SEPED was explained by M. René Louis Valée and some French publications in the area of gravity-research have been translated by the NASA translation service, as for instance the theory of the electromagnetic Magnus-Effect (of Marcel Pagés).

Specific mention must be made of the Raymond Kromrey G-field generator, a French-German-Swiss development which appears very closely related to the American "N" machine principle, the "Sunburst" machine and the "Permanent Magnet-Motor" Patent of Howard Johnson. Utilizing either permanent or electromagnetic modules, the generator output exceeds the input by far. One prototype delivers approximately 700 watts at speeds varying between 600 and 1200 RPM. Models with an output of 100 to 160 kw are presently in the planning stage. Several European patents have been granted against heavy opposition, especially from French industrial circles. The development was about 40 years in the making and the inventor stresses the need for a reinvestigation of electromagnetic and gravitic forces, as well as a reexamination of many cemented dogmas in present-day physics.

...tion of many cemented dogmas in present-day physics.

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Germany: A system of rotating electromagnets and magnetic "stator rings" of the German "Kunel" Generator complement the general trend of the American and French generators mentioned before. The first prototype was reported to have been tested in April, 1980. Here, again, very heavy opposition from the German orthodox science establishment. Of special interest is a comment by Nobel laureate Werner Heisenberg, reported to have been made vis-a-vis the inventor:

"I think it is possible to utilize magnetism as an energy-source. But we science idiots cannot do that; this has to come from the outside".

More details about French and German developments have been published in the new book already mentioned, *Energy in Abundance* by Hilscher and, hopefully, an English version of this important work will be available by next year. Generators which do interact with surrounding energy fields have been designated as "open systems", in contrast to our present "closed system" technology of gasoline and diesel engines, steam turbines, nuclear power plants and so forth. The theoretical basis for all "open systems" is the realization that there simply is no such thing as "empty space". In reality, space is filled with an extremely energy rich, sub-atomic and subquantic continuum. In short, a "pre-physical state of matter", which can be tapped, as for instance by the spinning of magnetic systems which extract momentum via a vortex-formation of the universal "tachion field".

Austria: This small heartland of Central Europe is proud of her native pioneers in science, among them Dr. Wilhelm Reich, Viktor Schauburger and Karl Schappeller. But after Dr. Reich died in an American prison in 1957 and Victor Schauburger died only five days after his return from the USA (in 1958), where he received an incredibly unfair treatment from certain industrialists, there is little enthusiasm among Austrians to touch base with correspondents on this continent. Viktor Schauburger's son, Walter, refuses, as a matter of principle, to communicate with Americans, no matter in what language. To illustrate the type of "contract" Viktor Schauburger was forced to sign, it stated:

that all of his patents would become the property of the "consortium",  
that any future inventions or developments would also become  
the property of the "consortium",  
that he would refrain from discussing any of it with third parties,  
that he would refrain from publishing,  
that all plans and models would remain with the "consortium" after  
his departure from America.

There is a favorite saying in that small country which is much to the point:  
"After the Greek philosopher Pythagoras had discovered his famous

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theorem, he sacrificed a whole hecatomb of oxen as a thanksgiving to the Gods. Ever since, all the oxen in the world are running scared whenever a new truth has been discovered".

Knowledge of the ideas of Schauberger and Schappeller appears to be essential for an understanding of our changing picture of the physical world. As an example, the former forest ranger Viktor Schauberger had watched numerous times some trout standing, apparently motionless, in the strong currents of Alpine mountain streams. This and many similar observations of nature brought him to the gradual development of his "implosion-theory" and associated hardware (see Jensen paper elsewhere). His son is continuing the work in the "Pythagoras-Kepler" School in Bad Ischl. Another prolific researcher is the Viennese engineer Franz Seidl, known for his studies of the use of magnetic field effects as "trigger energy" for voltage and power multipliers.

Holland: A small country with strongly developed intellectual independence appears to be Holland, where Prof. J.M.J. Kooy developed his "Space Dynamics". His hypothesis of gravitational action is based on the realization that all celestial bodies can be conceived as practically transparent in relation to the size of the elementary particles and their mutual distances in the structure of matter. Gravitons or tachions, coming from all directions of deep space, can pass through a celestial body like water passes through a fishnet, and only a minute fraction of the cosmic gravitons or tachions will be intercepted. Study of the effects of the tachion field or space continuum of the fabric of material substances, magnets and crystal lattices can lead to development of converters and novel production facilities for readily usable, conventional E/M energy. When the American inventor Edwin V. Gray was blocked in his efforts to develop his "Pulsed Capacitor Discharge Electric Engine" for which he had received U. S. Patent #3,890,548, he found open ears and open minds in Holland.

The fact that Gray was named "Inventor of the Year" from the Department of Patent Rights in Los Angeles, California, where Dr. Chalfin of Cal Tech confirmed that:

There does not exist an even distantly similar engine to this one in the world. Conventional electric engines use up power. In this system energy is used up for only a minute part of a millisecond. It operates without heat loss and there is no energy loss whatsoever with this system",

had more meaning to the people of PHILIPS and others in Holland than to the energy establishment in his native America.

England: There is perhaps no more controversial inventor at this time than

perhaps there is perhaps no more controversial inventor at this time than

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John R. R. Searl and his Levity Disc, powered by the Searl Effect generator. It is claimed that model craft have been demonstrated with flight characteristics showing anti-gravitational and inertia-free properties. Demonstrations have been photographed and videotaped. Searl calls his generator a "Gyro-Flywheel High Energy Density Mechanical Magnetic Device" and claims that the magnets used are not the common type, ordinary magnets. The Australian engineer Athol Park of Melbourne, Australia, who visited Searl a few years ago described it this way:

"From a briefcase, Mr. Searl takes a bar magnet and two steel rollers. He places the rollers at either end of the magnet. They appear to be attracted to the poles - but, when they are pushed gently around the corners of the magnet, they chase each other round and round.... "

The engineer quotes Searl:

"The crystals in the magnet are changed by putting it in a magnetic flux oven and by frequency control. The result is motion of a magnetic field - a completely new source of power. Units (modules) based on this principle are what power my levity unit - the motor and generator built as one, fuelless unit".

In one of his numerous newsletters he states further:

"The power plant is a self-contained, onboard closed system of conversion elements with energy input from a latent storage source".

Because Searl has never divulged all details and his explanations are generally of a non-technical, "unscientific" nature, many investigators have chosen to dismiss him as a swindler and imposter. In sharp contrast to this is the opinion of a well-experienced American engineer who reported after a visit with Searl:

"I found it refreshing to note the keen sense of moral responsibility which he feels for the use to which his discovery is put... The Searls live in modest circumstances. Luxuries are few. They do not own a car. Mr. Searl bicycles several miles daily to his place of work in Maidenhead. There he is an electrical technician and training supervisor in a bearing factory".

But perhaps most significant was the following observation of the American visitor about Searl:

"We were also interested to hear him say that many of his ideas came to him while he slept. He would go to sleep with questions, and awake with answers... and refreshed. He seemed to have the

and awake with answers... and refreshed. He seemed to have the

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ability to restore vital powers more quickly than most people".

And the American concluded his report with the statement:

"The impression we gained of Mr. Searl was one of a very sincere and generous person, a dedicated and tireless worker with perfect confidence in the outcome of his efforts, a man of high principle with a keen sense of loyalty to those who are helping him, and of responsibility for the future welfare of our planet and its people".

In view of the very contradictory nature of comments and impressions by those who have met Searl, it might be wise to reserve final judgment on the Searl-Levity-Disc and its inventor at this time.

New Zealand: Some of Searl's keenest supporters and observers of his work are in New Zealand and Australia. And one of the sharpest young physicists in that country (new Zealand), unhampered by calcified ideology, developed the mathematical foundation for a theoretical anti-gravity effect, using the hydrodynamic analogy of the ether. He uses the equivalent of the hydrodynamic Reynolds number, above a certain value of which the laminar flow past a solid surface breaks down and becomes turbulent due to shear rupture of the viscous cohesion of a fluid, together with his deduction that anti-gravity could be obtained by creating a "vacuum: in the ether in such a way as to correspond to the production of turbulence in a magnetic field. Turbulence in a fluid occurs when Reynolds number  $RE = 1$ , when the inertial shearing force equals the viscous cohesion force in the fluid in the vicinity of an approximately spherical body immersed in the fluid, resulting in separation of the boundary layer and formation of a wake, i. e. vacuum or free surface around the body. He calculated the threshold for turbulence in the ether, = a vacuum = an anti-gravity effect, using the refined value of ether kinematic viscosity which he obtained.

His theory would confirm the observations of very high voltage produced in the case of the Searl Levity Disc, and the very high voltage needed in the vacuum experiments with flying disc-shaped bodies of T. T. Brown, the "ionocraft" observations of Major de Seversky, the "Electro-Field Rockets of Prof. Dudley, the observations of Northrop Corp. with "Electro-Aerodynamics in Supersonic Flow" and similar American documentation and patents.

Since the New Zealander is now in the process of attempting to publish his theory in a reputable British magazine, I am not at liberty to divulge his address prematurely. Interest in New Zealand and Australia is running high, and possible breakthroughs in energy technology should not come totally unexpected in these two countries with strong intellectual ties to England.

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## Conclusion

There is now overwhelming evidence for the actual existence of a very high density, energy rich space continuum formerly called "ether". This space energy can be concentrated, gathered, focused, magnified and compacted by magnets or magnetic materials, which appear as the new core materials for converters of all kinds, utilizing the cosmic energy for new technology applications.

Crystals are energy-sensing and channeling devices; they can serve as transducers, as for instance in the Moray-Device, or the "rock electricity" of T. T. Brown.

Combinations of crystals and magnetic materials appear to be the mainstay for the development of "hyper-space" - converters and generators of power - utilizing free, cosmic energy in our future.

Unbiased, totally honest and impartial reexamination and reevaluation of all scientific theorems and dogmas, as well as unhampered opportunities for the pioneers of the new technology on the American and European continent appear to be the prerequisite of success.

Those who accept that anything of the nature of ideas or ideology is permanent, use all their strength to hold on to it, and to condemn all who do not agree. The next stage of this spiritual illness of the mind is to build a monument to what they perceive is Truth, and then to build a monument to their own permanence in the world. This, they do by seeking fame or fortune, and authority over others. This is the contemporary, planetary psychology situation, and thus are we losing the gift of perspective and horizon and are no longer able to discern what is important. Skeptics are on record as saying:

"We are not running out of natural resources or intellectual talent, we are running out of the freedom of innovation that made the countries on the North American continent the most advanced nations on earth".

The future will show whether this freedom, which includes the freedom and the duty of taking risks, can be restored to the degree our Founding Fathers have been striving for. Only then will we know whether the late Wernher von Braun was not too overly optimistic when he stated:

"The cosmic age will bring a dawn of knowledge not yet envisioned. It will dwarf all our present knowledge and ideas and, through its vastness, may even bring men closer together on their own planet".

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## 34 Flaws in Classical EM Theory

Note: If the scientific community had done their job, this Website would probably not be necessary.

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# **Flaws In Classical EM Theory**

- 1. Eliminates the Internal EM Inside the Scalar Potential.**
- 2. No Definition of Electrical Charge or of Scalar Potential.**
- 3. Equations Still Assume Material Ether Per Maxwell (Unchanged).**
- 4. Use of Force Fields in Vacuum is False (and Known to be So).**
- 5. Treats Charge  $q$  as Unitary Instead of Coupled System  $q = \phi(q)m(q)$ .**
- 6. Confuses Massless Potential Gradients as Forces (See #3, #4).**
- 7. Does Not Utilize Mass as a Component of Force (See #23).**

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## **Flaws In Classical EM Theory (2)**

- 8. Erroneously Assumes EM Force Fields as Primary Causes.**
- 9. Topology of EM Model Has Been Substantially Reduced.**
- 10. Does Not Include Quantum Potential or Action at a Distance.**
- 11. Does Not Include Superluminal Velocity of Inner EM Components.**
- 12. Does Not Utilize Extended Near-Field Coulomb Gauge Effects.**
- 13. Does Not Include EM Generatrix Mechanism for Time Flow.**
- 14. Does Not Unify Photon and Wave Aspects (Requires 7-D Model).**

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## **Flaws In Classical EM Theory (3)**

- 15. Does Not Include Electron Spin and Precession (See #19, #24).**
- 16. Treats EM Energy As Existing In "Chunks," Instead of as Flow.**
- 17. Confuses Energy and Energy Collection (See #16).**
- 18. Discards Half of Every EM Wave in Vacuum (See #22).**
- 19. Erroneously Uses Transverse Vacuum Wave; It's Quasi-Longitudinal.**
- 20. Arbitrarily Regauges Maxwell's Equations to Eliminate Overunity Maxwellian Systems.**
- 21. Omits Phase Conjugate Optics Effects ( Which are the *Rule* in Internal EM).**

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## **Flaws In Classical EM Theory (4)**

- 22. Does Not Include EM Cause of Newtonian Reaction Force.**
- 23. Erroneously Assumes Separate Force Acting on Separate Mass.**
- 24. Confuses Detected Electron Precession Waves as Proving Transverse EM Waves in Vacuum (Remnant of Old "EM Fluid" Concept).**
- 25. Due to Error in String Wave, Omits the Ubiquitous Antiwave.**
- 26. Assumes Equilibrium; Not True Unless Include Vacuum Interactions.**
- 27. Higher Topology Required, to Model Electromagnetic Reality.**

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## **Flaws In Classical EM Theory (5)**

- 28. Lorentz surface integration discards Poynting energy transport.**
- 29. Has nothing at all to say about form of EM entities in massless space.**
- 30. Eliminates the infolded general relativity using EM-force as curve agent.**
- 31. Does not include longitudinal EM wave phase conjugate pairs as time domain oscillations.**
- 32. Does not include EM mechanism that generates time flow and flow rate.**
- 33. Does not include time-excitation charging and decay.**
- 34. Does not utilize time-reversal zones.**

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## **TOWARDS A NEW ELECTROMAGNETICS PART I: SOLUTION TO TESLA'S SECRETS AND THE SOVIET TESLA WEAPONS**

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Reference Articles for Solutions to Tesla's Secrets

Bottone, A., "Nikola Tesla's New Wireless", *Electrical Engineer*,  
London, Dec. 24, 1909.

"Tesla's New Device Like Bolts of Thor", *N. Y. Times*, Dec. 8, 1915.

Secor, H. Winfield, "Tesla's views on Electricity and the War",  
*Electrical Experimenter*, Aug., 1917.

Tesla, Nikola, "The Effect of Statics on Wireless Transmission",  
*Electrical Experimenter*, Jan., 1919.

Gernsback, H., "Underground Wireless", *Electrical Experimenter*,  
March, 1919

Secor, H. Winfield, "America's Greatest War Invention, The Rogers  
Underground Wireless", *Electrical Experimenter*, March, 1919.

Tesla, Nikola, "Tesla on High Frequency Generators", *Electrical  
Experimenter*, April, 1919.

Tesla, Nikola, "The True Wireless", *Electrical E:x:perimenter*, May,  
1919.

Tesla, Nikola, "My Inventions, v. The Magnifying Transmitter",  
*Electrical Experimenter*, June, 1919.

"The Rogers Underground Aerial For Amateurs", *Electrical Experimenter*,  
June, 1919.

"A Giant Eye to See Round the World", *Albany Telegram*, Feb. 25, 1923.

Tesla, Nikola, "'World System' of Wireless Transmission of Energy", *Telegraph and Telephone Age*, Oct. 16, 1927.

Secor, H. Winfield, "Tesla Maps Out Our Electrical Future", *Science and Invention*, April, 1930.

Tesla, Nikola, "Man's Greatest Achievement", *N. Y. American*, July 6, 1930.

"Tesla at 75", *Time*, July 20, 1931.

Gernsback, Hugo, "Faster Than Light:", *Everyday Science and Mechanics*,  
Nov., 1931.

"No High Speed Limit, Says Tesla", *The Literary Digest*, Nov. 7, 1931.

O'Neill, John J., "Tesla Cosmic Ray Motor May Transmit Power 'Round Earth",  
*Brooklyn Eagle*, July 10, 1932.

"Tesla, 76, Reports His Talents At Peak", *N. Y. Times*, July 10, 1932.

Tesla, Nikola, "Pioneer Radio Engineer Gives Views on Power", *N. Y. Herald Tribune*, Sept., 11, 1932.

Bird, Carol, "Tremendous New Power Soon to be Unleashed", *Kansas City Journal-Post*, Sept. 10, 1933

"Tesla 'Harnesses' Cosmic Energy", *Philadelphia Public Ledger*, Nov. 2, 1933.

"Tesla Sees Evidence Radio and Light are Sound", *N. Y. Times*, April 8, 1934.

"Invents Peace Ray", *N. Y. Sun*, July 10, 1934.

"Death-Ray Machine Described", *N. Y. Sun*, July 11, 1934.

"Tesla, at 78, Bares New 'Death-Beam'", *N. Y. Times*, July 11, 1934.

Alsop, Joseph W., Jr., "Beam to Kill Army at 200 Miles, Tesla's Claim",

*N. Y. Herald Tribune*, July 11, 1934

Tesla, Nikola, "Tesla on Power Development and Future Marvels", *N. Y. World*

*Telegram*, July 24, 1934.

Wilshimer, Helen, "Dr. Tesla Visions the End of Aircraft in War", *Every*

*Week Magazine*, Oct. 21, 1934.

"A Machine to End War", by Nikola Tesla as told to George Sylvester Viereck,

*Liberty*, Feb., 1935.

"Tesla Predicts Ships Powered by Shore Beam", *N. Y. Herald Tribune*, June 5, 1935.

"3 Tesla Inventions", *N. Y. Sun*, July 9, 1935.

Sparling, Earl, "Nikola Tesla, at 79, Uses Earth to Transmit Signals; Expects to Have \$100,000,000 Within Two Years", *N. Y. World Telegram*,

July 11, 1935.

"Tesla's Controlled Earthquake", *N. Y. American*, July 11, 1935.

"Tesla, 79, Promises to Transmit Force", *N. Y. Times*, July 11, 1935.

Tesla, Nikola, "Expanding Sun will Explode Someday Tesla Predicts", *N. Y. Herald Tribune*, Aug. 18, 1935.

"Tesla, 80, Reveals New Power Device", *N. Y. Times*, July 11, 1936.

"Sending of Messages to Planets Predicted by Dr. Tesla on Birthday", *N. Y. Times*, July 11, 1937.

"Tesla Has Plan to Signal Mars", *N. Y. Sun*, July 12, 1937.

"In the Realm of Science: Tesla, Who Predicted Radio, Now Looks Forward

to Sending Waves to the Moon", *N. Y. Herald Tribune*, Aug. 22, 1937.

"Aerial Defense 'Death-Beam' Offered to U. S. By Tesla", *Baltimore Sun*,

July 12, 1940.

"'Death Ray' for Planes", *N. Y. Times*, Sept. 22, 1940.

"Proposing the 'Death Ray' for Defense", *Philadelphia Inquirer*,  
Oct. 20, 1940.

Swezey, Kenneth M., "Nikola Tesla", *Science*, May 16, 1958.

"Cableless Power", *Electronics* (Digest), July 22, 1960.

"Fireballs for Defense?", *Christian Science Monitor*, Feb. 7, 1962.

Lagus, George W., "The Use of Ground in High-Frequency Circuits",  
*Radio-TV and Science and Electronics*, June-July, 1969.

Jamison, S. L., "Life Energy", *Probe, The Unknown*, June, 1973.

Jueneman, Frederic B., "The First Law of Thermodynamics",  
*Industrial Research*, Feb., 1974.

Wade, Nicholas, "Charged Debate Erupts over Russian Beam  
Weapons",  
*Science*, May 27, 1977.

Benford, Gregory, "Zeus in Orbit", *Omni*, Sept., 1981.

## JAMES HARRIS ROGERS' PATENTS

(In order of patent application date)

958,829, Method and Apparatus for Producing High Frequency  
Oscillating Currents. James H. Rogers. Filed Jan. 20, 1910.

1,220,005, Wireless Signaling System. James Harris Rogers and Henry  
H. Lyon. Filed Nov. 10, 1916.

1,322,622, wireless Signaling System, James H. Rogers and Henry H.  
Lyon, Filed Nov. 10, 1916.

1,349,103, Radiosignaling System. James Harris Rogers. Filed May 2,  
1917.

1,315,862, Radiosignaling System. James Harris Rogers. Filed Jan. 17,



1918.

1,349,104, Radiosignaling System. James Harris Rogers. Filed Jan. 17, 1918.

1,303,729, Wireless Signaling System. James Harris Rogers. Filed Jan. 10,

1919.

1,303,730, Radiosignaling System. James Harris Rogers. Filed Jan. 11, 1919.

1,316,188, Radiosignaling System. James H. Rogers. Filed Mar. 28, 1919.

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### PART I

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### PART II

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Mildred Ratzlaff, Millbrae, Calif.

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## **FOREWORD**

The long-searched-for Tesla secrets have been solved by Tom Bearden. Part I contains the specific description of the solutions to Tesla's secrets and the Soviet Tesla weapons.

The present electromagnetic theory has several flaws, and it is these errors that have hidden the long-sought unified field theory. The explanations presented by the author provide clarity and understanding to related Tesla writings and patents.

Before the turn of the century, Nikola Tesla had discovered and was utilizing a new type of electric wave. Tesla repeatedly stated that his waves were non-Hertzian, and that his wireless transmissions did not fall off as the square of the distance. The author has found that the wave which Tesla was using is a longitudinal scalar wave, capable of many times the speed of light. When coupled with another scalar wave (Tesla wave), the resulting vector wave can be the source of electromagnetic energy for electrical power, a protective force field, or a destructive weapon.

The booklet is well illustrated with special drawings by Hal Crawford. The bibliography includes corroborating information on all major points. Part II presents reprints or the entire subject matter of selected articles from the bibliography, plus additional references of importance. Articles are arranged in chronological order. Also included are nine patents by James Harris Rogers which were the basis of successful wireless communication during World War I. These principles of underground and sub-sea wireless were based on Tesla's discoveries.

Bearden's solutions are truly a major breakthrough, and an absolute necessity to the understanding of existing Tesla writings. It is also important that more should be known of this extraordinary individual, Thomas E. Bearden.

### **BIOSKETCH:**

A nuclear engineer, wargames analyst, and military tactician, Lieutenant Colonel (Retired) Tom Bearden has over 26 years experience in air defense systems, tactics and operations; technical intelligence, anti-radiation missile countermeasures; nuclear weapons

employment, computerized wargames; and military systems requirements.

He is currently with the Alabama division of a large aerospace company where he is involved in determining the future requirements for laser weapons.

Lieutenant Colonel Bearden obtained a Master of Science degree in nuclear engineering from the Georgia Institute of Technology and a Bachelor of Science degree in mathematics from Northeast Louisiana University. He is also a graduate of the U.S. Army Command and General Staff College and several U.S. Army artillery and missile schools.

He has had direct experience with tube artillery and with the Ajax, Hercules, Hawk, and Patriot missile systems and the production of technical intelligence on Soviet surface-to-air missile systems for the U.S. Army/Department of Defense.

Tom holds a Sandan (third degree black belt) in Yoseikan aikido; is a singer, guitarist and songwriter; member of Mensa, Society for the Investigation of the Unexplained, Vestigia, the American Association of Meta-Science: and is on the board of governors of the U.S. Psychotronics Association. In addition, he is Alabama Director of a small nonprofit foundation, the Association of Distinguished American Scientists and is a MUFON adviser on nuclear engineering.

He also edits *Specula*, Journal of the American Association of Meta-Science.

Tom is primarily active as a theorist on UFOs, parapsychological and paranormal phenomena, and psychotronics. He is the author of a book, *The Excalibur Briefing*, Strawberry Hill Press, 2594 15th Avenue, San Francisco, California 94127 and has numerous technical papers dealing with new paradigm physics, paranormal phenomena, and Soviet psychotronic weapons.

Finally, Bearden's *Solutions to Tesla's Secrets and the Soviet Tesla Weapons* promises to be recognized in the future as a major contribution to our present technology.

JTR

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### TESLA'S SECRET AND THE SOVIET TESLA WEAPONS

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With Special Drawings by Hal Crawford

Before the turn of the century, Nikola Tesla had discovered and was utilizing a new type of electric wave. Tesla repeatedly stated his waves were non-Hertzian, and his wireless transmissions did not fall off as the square of the distance. His discovery was apparently so fundamental (and his intent to provide free energy to all humankind was so clear) that it was responsible for the withdrawal of his financial backing, his deliberate isolation, and the gradual removal of his name from the history books.

By 1914 or so, Tesla had been successfully isolated and was already nearly a "nonperson." Thereafter Tesla lived in nearly total seclusion, occasionally surfacing (at his annual birthday party for members of the press) to announce the discovery of an enormous new source of free energy, the perfection of wireless transmission of energy without losses, fireball weapons to destroy whole armies and thousands of airplanes at hundreds of miles distance, and a weapon (the "Tesla Shield," I've dubbed it ) that could provide an impenetrable defense and thus render war obsolete.

In my pursuit of Tesla's secret, it gradually became apparent to me that present orthodox electromagnetic theory is seriously flawed in some fundamental respects. One of these is in the definition and use of  $\phi$ , the scalar electrostatic potential. It is this error which has hidden the long-sought unified field theory from the theorists.

In the theory of the scalar electrostatic potential (SEP), the idea is introduced of work accomplished on a charge brought in from a distance against the scalar field. The SEP is not a vector field, but is a scalar field. Indeed, scalar potential cannot of itself perform work on a charged mass; if it could do so, then tremendous force would exist on every mass due to the extremely high SEP of the vacuum itself. Only a differential of SEP between two spatial points can produce force or accomplish work. (Rigorously, a differential of scalar potential between two spatial points constitutes a vector. Only a vector can produce force and do work.)

Also, work can only be done on a mass. Further, it takes time\* to move an electron or other charged mass between two spatial points, and so the work performed by a spatial differential of the  $\phi$ -field requires time. Rigorously, the delta SEP is voltage, not SEP per se, and is directly related to

E field. The entire voltage concept depends on the work performed in moving a mass, after that mass has moved. The idea of "voltage" always implies the existence of a steady differential of  $\phi$  between two spatial points for a finite length of time, and it also involves the assumption of a flow of actual mass having occurred. SEP, on the one hand, is always a single-point function; on the other hand, difference in potential (i.e.,  $V$ ) is always a two point function, as is any vector.

Yet many graduate level physics and electromagnetics papers and texts erroneously confuse  $\phi$  and  $V$  in the static case! Such an interpretation is of course quite incorrect.

---

*\* Two spatial points involve at least  $\Delta t = \Delta L/c$  in time. All vectors and gradients involve 2 separated spatial points, and thus present timelines in 4-space.  $\phi_4$  is a point, not a line, in 4-space.*

---

Another common assumption in present EM theory -- that the electrostatic potential ( $\phi_0$ ) of the normal vacuum is zero -- has no legitimate basis. In fact, we know  $\phi_0$  is nonzero because the vacuum is filled with enormous amounts of fluctuating virtual state activity, including incredible charge fluctuations. And by virtue of its point definition,  $\phi_0$  must be the "instantaneous intensity" of these fluctuations -- but both in space and time. The scalar electrostatic potential is therefore the "instantaneous stress" on spacetime itself, and a measure of the intensity of the virtual state flux through a 4-dimensional spacetime point.

Potential theory was largely developed in the 1800's, before the theory of relativity. Time flowrate was then regarded as immutable. Accordingly, electrostatic "intensity" was chosen as "spatial intensity," with the connotation of "spatial flux density." This assumes a constant, immutable rate of flow of time, which need not be true at all if we believe relativity. Such a spatial "point" intensity is actually a "line" in 4-space, and not a 4-dimensional "point" at all. Thus the spatial potential --  $\phi_3$  -- is a very special case of the real spacetime potential --  $\phi_4$ , or charge and electromagnetic theory today is accordingly a special case of the real 4-space electromagnetism that actually exists! Note also that charge is a 4-dimensional concept.

Now mass is a spatial, 3-dimensional concept. Rigorously, mass does not exist in time -- masstime exists in time. Mass and charge are thus of differing dimensionalities!

Also, according to quantum mechanics, the charge of a particle -- e.g., of an electron -- is due to the continual flux of virtual particles given off and



absorbed by the observable particle of mass. Thus charge also is conceptually a measure of the virtual flux density, and directly related to  $\phi$ . Further, since the charge exists in time, it is the charge of a particle of spatial mass that gives it the property of masstime, or existing in time.

Here a great confusion and fundamental error has been thrown into the present EM theory by the equating of "charge" and "charged mass." As we have seen, the two things are really very different indeed.

To speak of a spatial "amount" of charge erroneously limits the basic EM theory to a fixed time flowrate condition (which of course it was considered to be, prior to Einstein's development of relativity). Thus when the limited present theory encounters a "relativistic" case (where the time flowrate changes), all sorts of extraordinary corrections must be introduced. The real problem, of course, is with the fundamental definitions of electrostatic potential and charge. The spatial "amount" of charge (i.e. the coulomb) as we presently erroneously use the term, is actually the spatial amount of observable "charged mass." To correct the theory, one must introduce the true 4-space SEP and separate the definitions of charge and charged mass.

Only when a mass is moved does one have work -- and voltage or vector fields. (The reason one has voltage and E field connected to a normal electrostatically charged object in the laboratory is because an excess of charged-particle masses are assembled on the object, and these masses are in violent motion! A true static charge would have no E field at all. )

Table 1. Some Present Theoretical Facts

- $\emptyset_3$ -FIELD CONCEIVED BEFORE RELATIVITY
  - POINT FUNCTION IN SPACE
  - LINE FUNCTION IN SPACETIME
  - TIME FLOWRATE CONSIDERED IMMUTABLE
  - SPECIAL CASE OF  $\emptyset_4, \dots, \emptyset_N$
- GRADIENT BETWEEN TWO POINTS IN  $\emptyset_3$  FIELD
  - PRODUCES VOLTAGE
  - PRODUCES E FIELD
  - MOVES ELECTRON
  - IS AN AREA IN 4-SPACE
- GRADIENT MAY BE BETWEEN SEPARATED POINTS IN TWO SUPERPOSED  $\emptyset$ -FIELDS
- $\emptyset$ -FIELD CAN "MOVE" AT INFINITE VELOCITY\*

Table 2. Some Proposed  $\phi_4$  Characteristics

- SPATIOTEMPORAL  $\phi_4$  FIELD
  - STRESS ON SPACETIME
  - CAN CHANGE RATE OF FLOW OF TIME
- GRADIENT BETWEEN 2 POINTS IN  $\phi_4$  FIELD
  - PRODUCES COMPLEX  $V_4$
  - WILL MOVE ELECTRON IF
    - $V_3 \neq 0$ , AND
    - $\nu_1 = \nu_2 = c$
  - WILL NOT MOVE ELECTRON IF
    - $V_3 = 0$ , OR
    - $\nu_1 \neq \nu_2$
- GRADIENT MAY BE BETWEEN SEPARATED POINTS IN TWO SUPERPOSED  $\phi_4$  FIELDS
- $\phi_4$  WAVE MOVES AT  $0 \leq \nu_4 \leq \infty$
- $\phi_4$  WAVE IS COMPLEX AND LONGITUDINAL

$\phi$ -field need not involve observable mass accumulation, but only charge (virtual flowrate intensity) accumulation. Accumulated masses are like so many gallons of water; accumulated charge is like so much pressure on both the water (space) and the time in which the water is existing.

Now, if one varies the SEP solely as a point function, one would have a purely scalar complex longitudinal wave, and not a vector wave at all. This is the fundamentally new electrical wave that Tesla discovered in 1899.

Rigorously, all vector fields are two-point functions and thus decomposable into two scalar fields, as Whittaker showed in 1903. It follows that any vector wave can be decomposed into two scalar waves. By implication, therefore, a normal transverse EM vector wave, e.g., must simply be two coupled scalar (Tesla) waves -- and these scalars independently would be longitudinal if uncoupled. An ordinary transverse EM vector wave is thus two pair-coupled Tesla scalar longitudinal waves, and only a single special case of the much more fundamental electromagnetics discovered by Nikola Tesla.

A Tesla (scalar potential) wave -- i.e., a massless wave in pure  $\phi_0$ , the stress of the spacetime medium would have very strange characteristics indeed. For one thing, since it moves in a complex 4-space, it has many more modes of movement than does a simple wave in 3-space. And for another thing, it need not be bound at all by the speed of (vector) light. In current theory, one  $\phi_3$ -field does not directly interact or couple with other existing  $\phi_3$ -fields except by simple superposition. Therefore presently the  $\phi$ -field is considered to have no drag limitation at all, hence infinite velocity. (E.g., as stated in Jackson, Classical Electrodynamics, 2nd edition, page 223.)

Actually, a  $\phi_4$ -wave can and will interact with some of the other existing  $\phi_4$ -waves in the medium transversed, and this interaction can involve pair-coupling into EM vector fields and waves, an interaction not presently in the electrodynamics theory. The result of scalar pair-coupling creates a finite amount of vector "drag" on the  $\phi_4$ -wave, so it then has less than infinite velocity. However, if this drag is small due to limited pair-coupling, the scalar wave's velocity through the slightly dragging medium still may be far greater than the speed of vector EM waves (light) in vacuum. On the other hand, if the pair-coupling is made severe, the  $\phi$ -wave may move at a speed considerably below the speed of vector light waves in vacuum. The velocity of the  $\phi_4$ -wave is thus both variable and controllable or adjustable (e.g., simply by varying its initial amplitude, which through a given medium changes the percentage of pair-coupling and hence the degree of drag on the scalar wave). The Tesla scalar wave thus can have either subluminal or superluminal velocity, in contradiction to present theory.

Note that the scalar wave also violates one of Einstein's fundamental postulates -- for the speed of our "new kind of light" wave is not limited to  $c$ , and need not be the same to every observer. Thus Tesla scalar waves lead to a new "superrelativity" of which the present Einstein relativity is only a highly special case!

Table 3. Tesla Waves Can:

- **ESTABLISH STANDING WAVES**
  - in the earth
  - in the ionosphere
- **TAP ENERGY FROM THE EARTH'S CORE**
- **TRAVEL FASTER OR SLOWER THAN LIGHT**
- **CHANGE RATE OF TIME FLOW**
- **AFFECT ALL FIELDS, INCLUDING GRAVITY**
- **COMMUTE BETWEEN VIRTUAL AND OBSERVABLE**

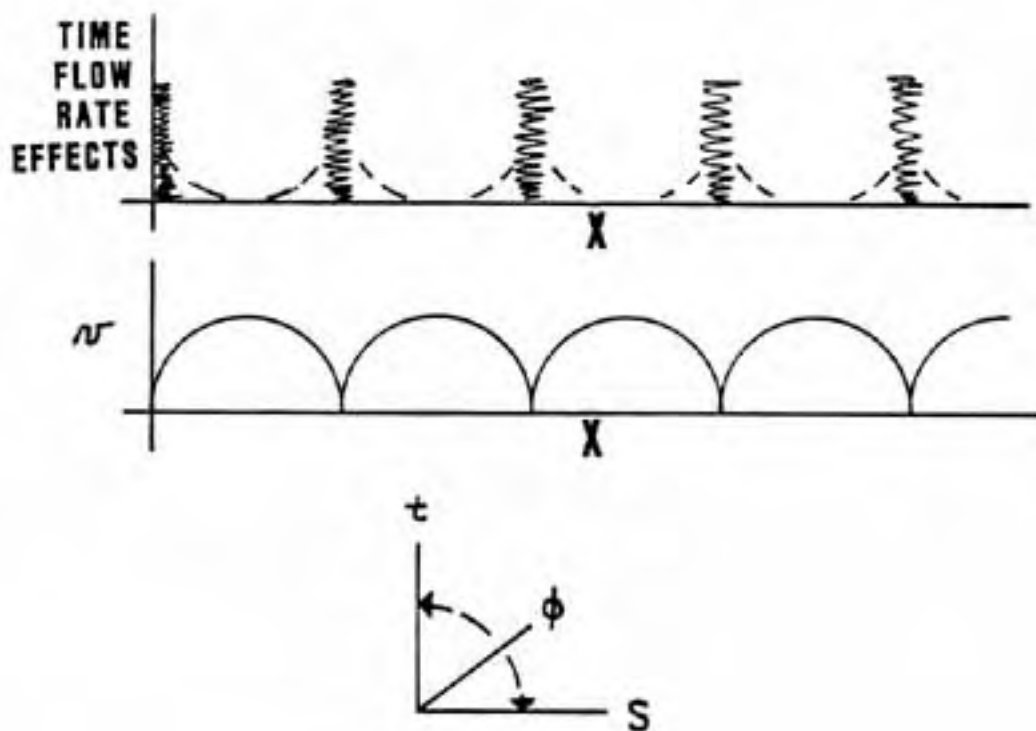
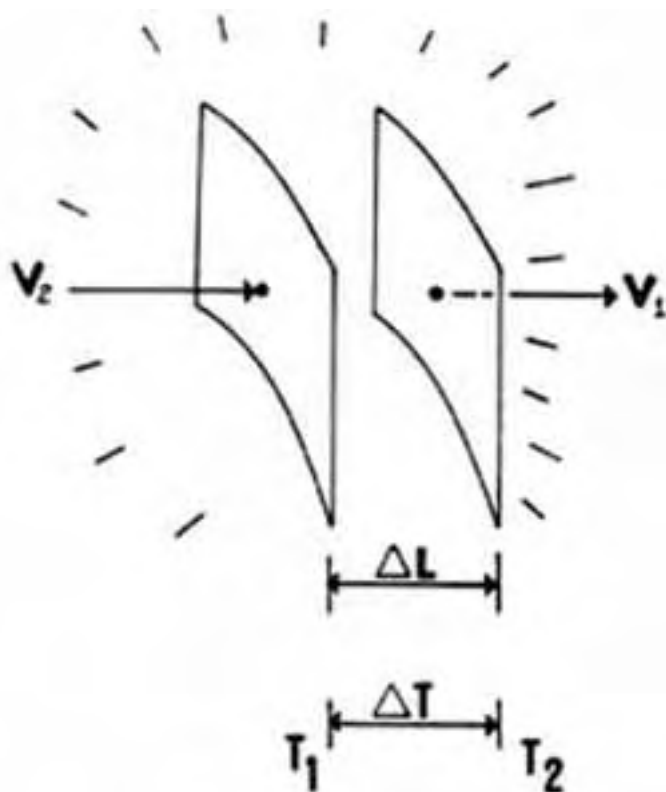


Figure 1. Tesla's Standing Columnar Wave

But let us now look for some subtle but real examples of scalar waves and scalar pair-coupling in nature. As is well known, a tectonic fault zone can provide anomalous lights, sounds, etc. from stresses, piezoelectrical activity, and telluric currents in the earth and through the fault zone. In examining the fault zone phenomena, I finally realized that a fault zone was literally a scalar interferometer i.e., if one can have scalar  $\phi_4$ -waves, they can interfere, either constructively or destructively. Their interference, however, produces scalar pair-coupling into vector EM waves. This coupling may be at a distance from the interferometer itself, and thus the interferometer can produce energy directly at a distance, without vector transmission through the intervening space. Coupling of  $\phi$  waves with the paired scalars comprising ordinary EM vector waves can also occur. If this triplex coupling forms additional EM vector waves 180 degrees out of phase, the ordinary EM wave is diminished or extinguished. If the scalar triplex coupling occurs so as to create vector EM waves in phase with the interacting vector EM wave, the amplitude of the ordinary vector wave is increased.

Scalar potential waves can thus augment or diminish, or create or destroy, ordinary EM waves at a distance by pair-coupling interference under appropriate conditions, and this is in consonance with the implications of Whittaker's fundamental 1903 work.

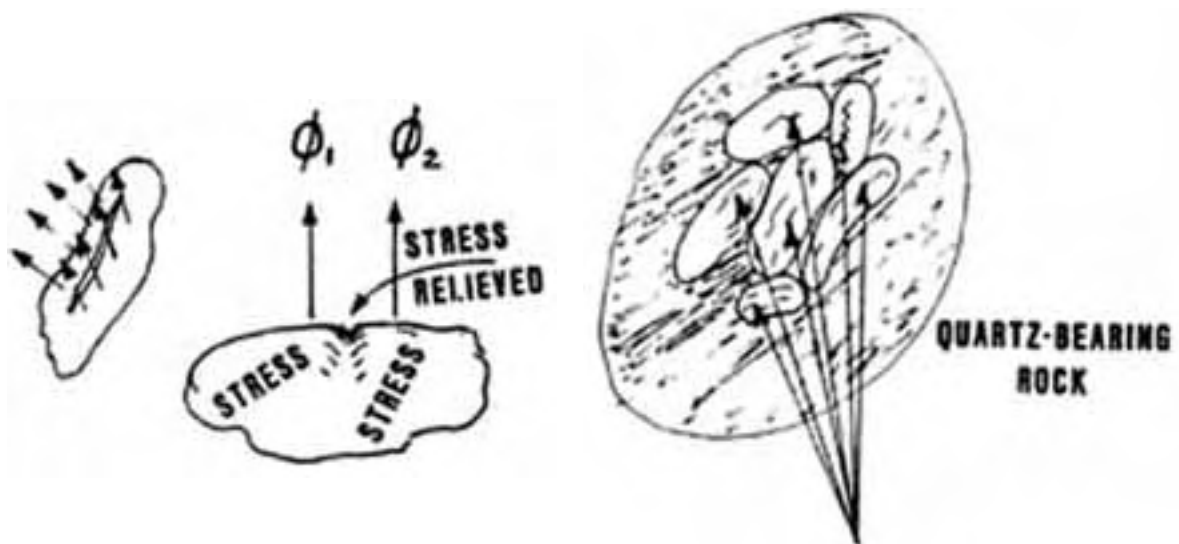


**ALL VECTORS AND  
VECTOR FIELDS  
ARE CREATED  
BY SCALAR  
INTERFEROMETRY  
AND PAIR  
COUPLING**

**EM COUPLING  
CONDITION**

$$\Delta L/c = \Delta T$$

Figure 2. Pair Coupling: Producing EM at a Distance



**EACH TINY STRESSED CRACK  
ACTS AS A SCALAR  
INTERFEROMETER**

**LOCKED-IN STRESSED CRACKS**

**BECOMES A PRIGOGINE CRYSTAL**

Figure 3. Natural Scalar Interferometers

An earthquake fault zone is such a scalar interferometer. Stresses and charge pileups exist in the plates on each side adjacent to the fault, with stress relief existing in the middle in the fault fracture itself. Since the rock is locally nonlinear, the mechanical stresses and electrical currents in it are also locally nonlinear. This results in the generation of multiple frequencies of  $\phi_4$ -waves from each side of the fault interferometer, yielding two complex Fourier expansion patterns of scalar potential waves. On occasion these two Fourier-transformed scalar wave patterns couple at a distance to produce stable ordinary electromagnetic field in a 3-dimensional spatial pattern -- e.g., a stress light such as the Vestigia light covered in Part I of [The Excalibur Briefing](#). Driven by the erratic two scalar Fourier expansion patterns of the scalar interferometer (whose input stresses normally slowly change), an erratic, darting, hovering "spooklight" of the variety studied by Vestigia is produced.

As the stresses change in each side of the interferometer, the distant scalar coupling zone is affected. Thus the stresslight moves and its form changes, but it may be relatively stable in form for seconds or minutes. Since the stresses in the rock may be intense, the stress light may involve an intense pair of  $\phi$ -patterns coupling into the sphere or ball of vector EM energy. The atoms and molecules of the air in the region of the coupled stresslight ball thus become highly excited, giving off radiant energy as the excited states decay.

Since much of the piezoelectric material in the stressed rocks is quartz grains, the features of quartz are of particular interest. Each little quartz grain is itself highly stressed, and has stress cracks. It is therefore a little scalar interferometer. Further, quartz is transparent to infrared and ultraviolet; and the random orientation of all the quartz scalar interferometers may also form a Prigogine system far from thermodynamic equilibrium. If so, this system can tap into highly energetic microscopic electromagnetic fluctuations to produce large-scale, ordered, relatively stable patterns of electromagnetic energy at a distance.

In short, all of this lends support to the formation of relatively stable but somewhat erratic patterns of electromagnetic energy at a distance from the fault itself. In the atmosphere, such scalar interferometers could form in clouds or even in the air or between clouds and earth. If so, such rare but occasional "weather" scalar interferometers could account for the rare phenomenon of ball lightning. The intense energy of the ball of lightning, as compared to the lesser energy of an earthstress light, could well be due to the enormous electrical charges between clouds or between cloud and earth, available to fuel the scalar interferometer. Very probably it is this phenomenon which gave Tesla the clue to scalar wave interferometry.

Thus such phenomena as earthstress lights, ball lightning, and the Tesla system of wireless transmission of energy at a distance with negligible losses and at speeds exceeding the speed of light may be explained. They are complex, however, and involve fundamental changes to present electromagnetic theory. These changes include utilizing 4-space scalar



electrostatic potentials, scalar waves, pair coupling, ordinary 3-dimensional Fourier expansion, the Prigogine effect, and the properties of piezoelectric materials in rocks.

Since the scalar potential also stresses time, it can change the rate of flow of time itself. Thus it affects anything which exists in time -- including the mind, both of the individual and at various levels of unconsciousness.

Therefore the same functions that result in earthstress lights also affect mind and thought, and are in turn affected by mind and thought. This is the missing ingredient in Persinger's theory that UFO's are correlated with, and a result of, fault zones and earth stresses. While Persinger seems to feel this is a "normal physics" explanation, it indeed involves a paranormal explanation.

The time-stressing ability of the true  $\phi$  scalar wave also explains the interaction of such earthstress lights with humans and human intent, as noted by other researchers. (E.g., the lights that repeatedly seemed to react to the observers, as detailed by Dr. Harley Rutledge in his epoch-making Project Identification, Prentice-Hall, 1981.)

These ideas in condensed form comprise the concepts required to violate the speed of light and produce an ordinary electromagnetic field at a distance, using scalar interferometry, without losses -- as Tesla had done in his wireless transmission system which he had tested prior to 1900 and had perfected by the 1930's. Scalar interferometry can give stable regions of EM or "light energy" at a distance without losses, particularly as detailed in the beautiful Vestigia experiments, and it is within our grasp to utilize the new effects. Indeed, any stress crack in a material can result in the scalar potential interferometer effect. Exophoton and exoelectron emission -- poorly understood but already known in fatiguing of materials -- must be at least partly due to the scalar interferometer effect.

However, one additional caution should be advanced. Normal movement of electrons allows so much "sideplay" movement of the electrons -- and there is so much such sideplay electron motion in the surrounding vicinity -- that pair coupling is almost instantaneous for small waves. Thus orbital electrons in atoms seem to absorb and emit vector EM photons. Actually they also emit some percentage of scalar waves as well. Since a scalar wave is comprised exclusively of disturbance in the virtual state, it need not obey the conservation of energy law. Further, a scalar wave of itself does not "push electrons" or other charges; hence it is nearly undetectable by present detectors. Ionization detectors such as a Geiger counter tube, e.g., are exceptions if the scalar wave encountered is fairly strong. In that case sufficient triplex coupling with the ionized gas occurs to produce additional ionization or charge, breaching the tube's cutoff threshold and producing a cascade discharge of electrons and voltage which is detected. But weak scalar waves are presently undetectable by ordinary instruments. However, these small scalar waves are detectable by sensitive interferometry techniques e.g., such as an electron interferometer. Since the use of such instruments is quite rare, then indeed we have been living immersed in a sea of scalar waves without knowing it.

Finally, the percentage of scalar waves produced by changes in charged

mass pileups can be increased by utilizing charged mass streaming. Essentially the charged masses must be moved suddenly, as quickly as possible, at or near the complete breakdown of the medium. For this reason, Tesla utilized sparkgaps in his early transmission systems, but also found that he could induce ionized media to "breakdown" in such fashion by a slow growth process. One of his early patented atmospheric wireless transmission systems is based on this fact. However, it was necessary to use a very high voltage, insuring extreme stress on the medium and hence some spillover stress onto time itself. In other words,  $\phi_3$  is always an approximation; at sufficiently high spatial stress, sufficient spillover  $\phi_4$  exists to give Tesla scalar waves. For this reason, Tesla used very high voltages and extremely sharp discharges to give "streaming" of the charged masses and thus high percentages of  $\phi_4$  waves. This suggests that the breakdown of dielectrics is a much richer phenomenon than is presently allowed for in the conventional theory.

To summarize, electrostatic potential --  $\phi$ -field is stress on the spacetime medium at a four-dimensional point. I. e. , it is a sort of pressure on the medium, but pressure on all four dimensions, not just on the three spatial dimensions. Thus in the new standard theory,  $\phi_4$  may have complex values. In addition, a  $\phi$ -wave is to be interpreted as a scalar longitudinal wave in complex spacetime -- directly in  $\phi_0$ , the normal average 4-space stress itself. And charge and charged mass must be recognized as two separate concepts. This is the gist of what I finally recognized about Nikola Tesla's work and fundamental discovery.

This is exciting, for it means that Tesla stress waves can affect either space or time individually, or both space and time simultaneously, or even oscillate back and forth between primarily affecting time and primarily affecting space, Tesla's waves were actually these  $\phi$ -field scalar waves. As such, they were fundamentally different from ordinary electromagnetic waves, and had entirely different characteristics, just as Tesla often stated. E. g., a Tesla wave can either move spatially, with time flowing linearly; move temporally only (sitting at a point and waxing and waning in magnitude -- but changing the rate of flow of time itself in doing so, and affecting gravitational field, fundamental constants of nature, etc, ), or move in a combination of the two modes. In the latter case, the Tesla wave moves in space with a very strange motion -- it oscillates between (1) spatially standing still and flexing time, and (2) moving smoothly in space while time flows smoothly and evenly. I.e., It stands at one point (or at one columnar region), flexing for a moment; then slowly picks up spatial velocity until it is moving smoothly through space; then slows down again to a "standing column," etc. This is Tesla's fabulous "standing columnar wave."

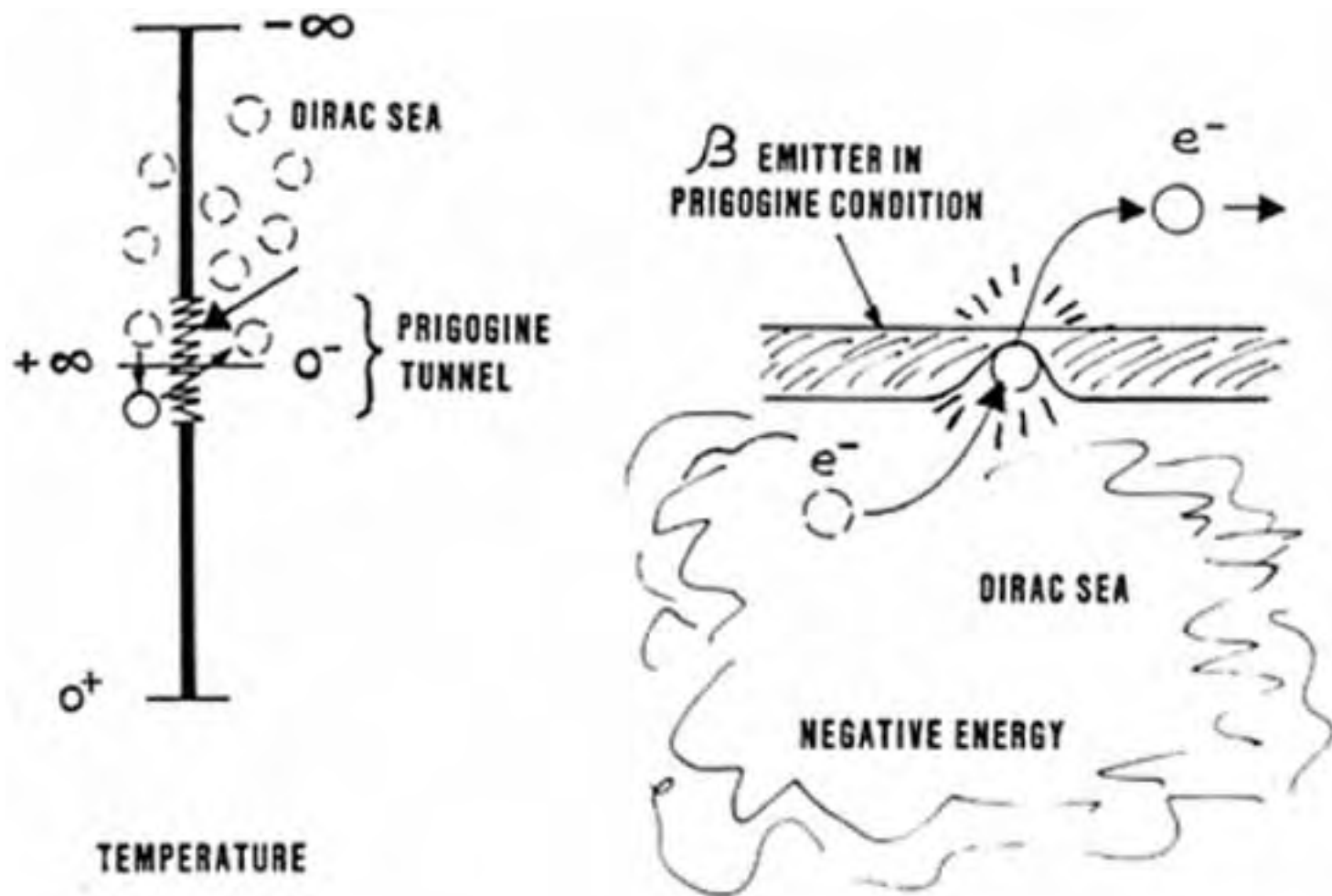


Figure 4. Exoelectric Emission

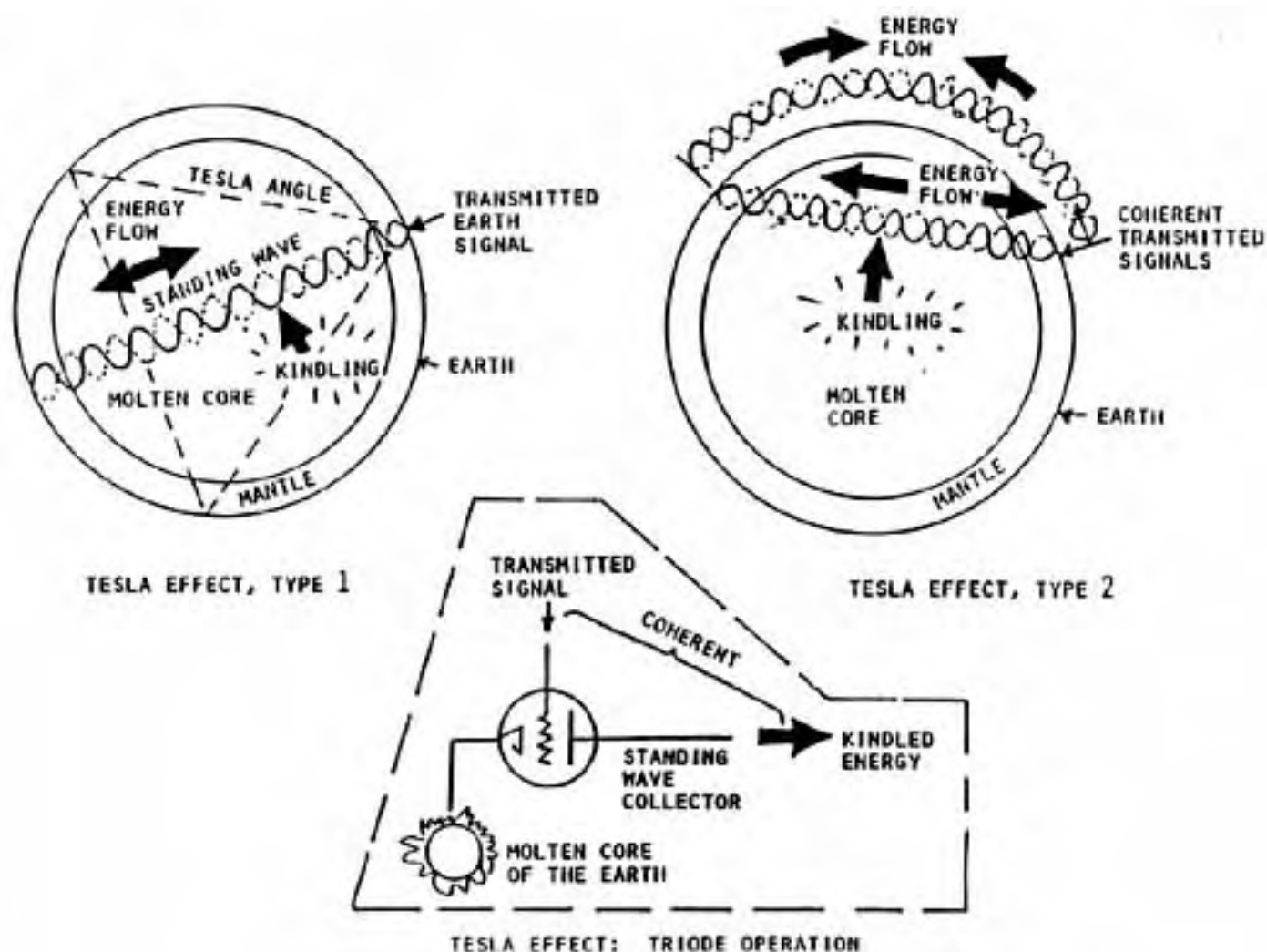


Figure 5. The Tesla Effect

Another wild characteristic of the Tesla wave is that it can affect the rate of flow of time itself; hence it can affect or change every other field including the gravitational field -- that exists in time flow. It can also affect all universal constants, the mass of an object, the inertia of a body, and the mind and thoughts as well! All of these exist in the flow of time, and they are affected if the time stream in which they exist is affected. This was the awful secret that Tesla partially discovered by 1900, and which he came more and more to fully realize as he pursued its nature and its ramifications into the 1920's and 1930's.

Tesla also found he could set up standing  $\phi$ -field waves through the earth. He in fact intended to do so, for he had also discovered that all charges in the highly stressed earth regions in which such a standing wave existed produced  $\phi$ -fields which would feed (kindle) energy into the standing  $\phi$ -field wave by pair coupling. I.e., normal vector field energy would "assemble" onto the scalar matrix wave by means of pair-coupling. Thus by transmitting a scalar standing wave into the earth, he could easily tap the fiery scalar fields produced in the

molten core of the planet itself, turning them into ordinary electromagnetic energy. In such case, a single generator would enable anyone to put up a simple antenna and extract all the free energy desired.

When Tesla's alarmed financial backers discovered this was his real intent, they considered him a dangerous madman and found it necessary to ruthlessly stop him at all costs. And so his financial support was withdrawn, he was harassed in his more subtle patent efforts (and the patents themselves were adulterated), and his name gradually was removed from all the electrical textbooks. By 1914 Tesla, who had been the greatest inventor and scientist in the world, had become essentially a nonperson.

A few other persons in the early 1900's also were aware that potential and voltage are different. And some of them even learned to utilize Tesla's  $\phi$ -field, even though they only vaguely understood they were utilizing a fundamentally different kind of electromagnetic wave. For example, James Harris Rogers patented an undersea and underground communications system which Tesla later confirmed utilized Tesla waves. The U.S. secretly used the Rogers communications system in World War I to communicate with U.S. submarines underwater, and to communicate through the earth to the American Expeditionary Force Headquarters in Europe. The Rogers system was declassified after the War and very shortly after that, it had mysteriously been scrubbed off the face of the earth. Again, potential stress waves -- Tesla waves -- were eliminated and "buried."

Probably the most brilliant inventor and researcher into Tesla's electromagnetics was T. Henry Moray of Salt Lake City, Utah. Dr. Moray actually succeeded in tapping the limitless zero-point energy of vacuum (spacetime) itself. By 1939, Dr. Moray's amplifier contained 29 stages and its output stage produced 50 kilowatts of power from vacuum. Interestingly, another 50 kilowatts could be tapped off any other stage in the device -- which consequently could have produced almost 1.5 megawatts of electrical power! Dr. Moray's epoch-making work was suppressed also. His device -- which represented over 20 years of heartbreaking accumulation of 29 working tubes from thousands made -- was destroyed by a Soviet agent in 1939, but not before the agent had obtained the drawings for building the tubes and the device itself. Today the Moray amplifier is a standard component of many of the Soviet secret superweapons and Tesla weapons.

In the 20's and 30's, Tesla announced the final perfection of his wireless transmission of energy without losses even to interplanetary distances. In several articles (e.g., H. Winfield Secor, "Tesla Maps Our Electrical Future, " Science and Invention, Vol. XVII, No.12, pp. 1077, 1124-1126), Tesla even revealed he used longitudinal stress waves in his wireless power transmission. Quoting from the article, "Tesla upholds the startling theory formulated by him long ago, that

the radio transmitters as now used, do not emit Hertz waves, as commonly believed, but waves of sound." "He says that a Hertz wave would only be possible in a solid ether, but he has demonstrated already in 1897 that the ether is a gas, which can only transmit waves of sound; that is such as are propagated by alternate compressions and rarefactions of the medium in which transverse waves are absolutely impossible." The wily Tesla did not reveal, of course, that such scalar waves nearly always immediately pair-coupled into vector waves when produced by normal means. Tesla himself was working with longitudinal scalar waves.

Table 4. Rogers' Undersea and Underground Communication System

- **SECRETLY USED BY U.S. IN WWI**
- **COMMUNICATED TO SUBS UNDERWATER**
  - ANY DEPTH, UP TO 30 KHZ
  - REDUCED DEPTH, >30 KHZ
- **COMMUNICATED TO EXPEDITIONARY HQ OVERSEAS**
  - 5,000 TIMES STRONGER THAN AERIAL
  - STATIC-FREE
- **DECLASSIFIED IN 1919**
  - TO REVOLUTIONIZE COMMUNICATIONS
  - TO END ALL SURFACE ANTENNAS
- **MYSTERIOUSLY "LOST"**
- **REDISCOVERED AND "LOST" THREE TIMES AFTER WWII**

[continued](#)





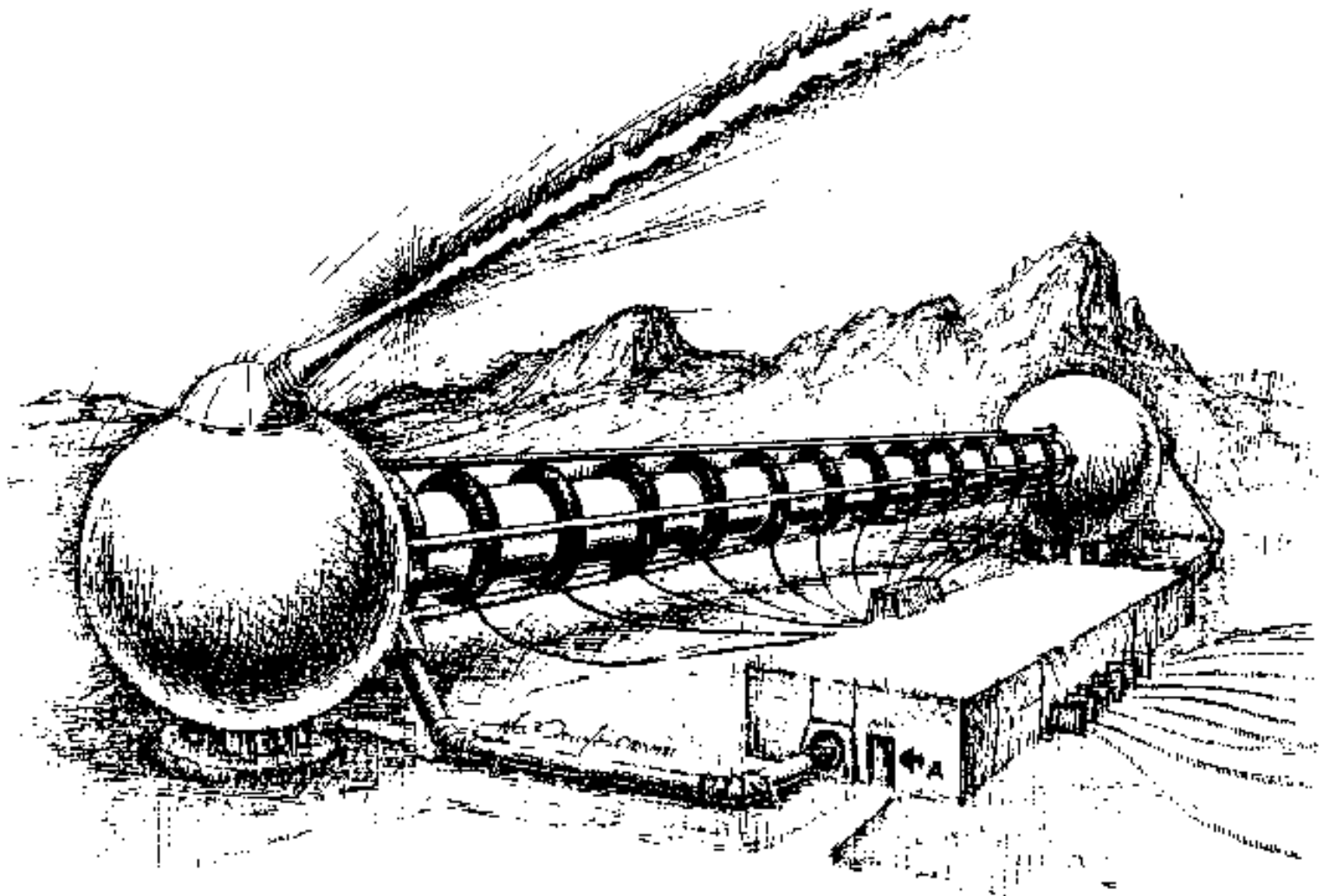
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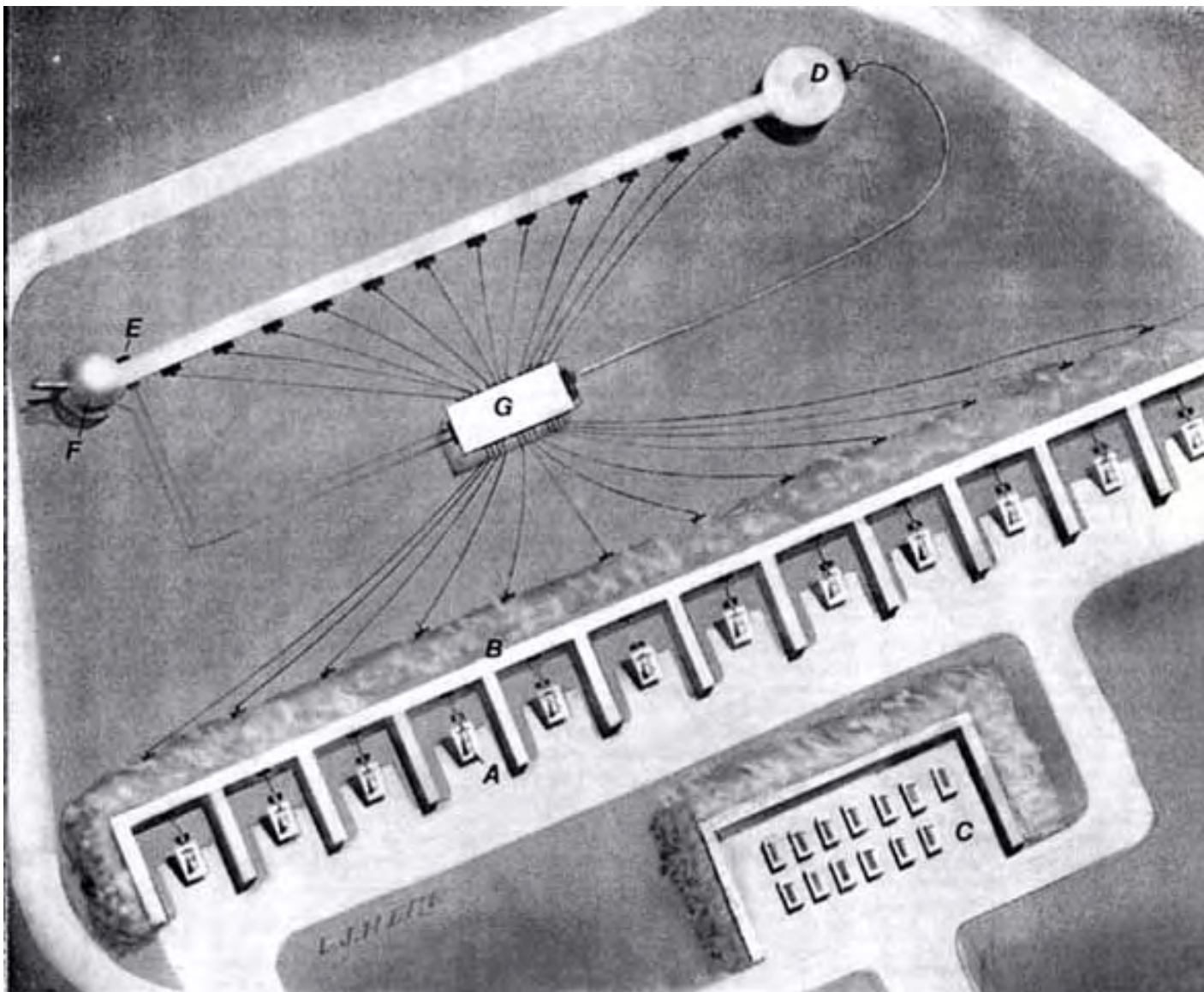


## Scalar Potential Interferometer

Figure 6. Multimode Tesla Weapon

In the 1930's Tesla announced other bizarre and terrible weapons: a death ray, a weapon to destroy hundreds or even thousands of aircraft at hundreds of miles range, and his ultimate weapon to end all war -- the Tesla shield, which nothing could penetrate. However, by this time no one any longer paid any real attention to the forgotten great genius. Tesla died in 1943 without ever revealing the secret of these great weapons and inventions.

Unfortunately, today in 1981 the Soviet Union has long since discovered and weaponized the Tesla scalar wave effects. Here we only have time to detail the most powerful of these frightening Tesla weapons -- which Brezhnev undoubtedly was referring to in 1975 when the Soviet side at the SALT talks suddenly suggested limiting the development of new weapons "more frightening than the mind of man had imagined." One of these weapons is the Tesla howitzer recently completed at the Saryshagan missile range and presently considered to be either a high-energy laser or a particle beam weapon, (See Aviation Week & Space Technology, July 28, 1980, p. 48 for an artist's conception.)



Aviation Week & Space Technology July 28, 1980

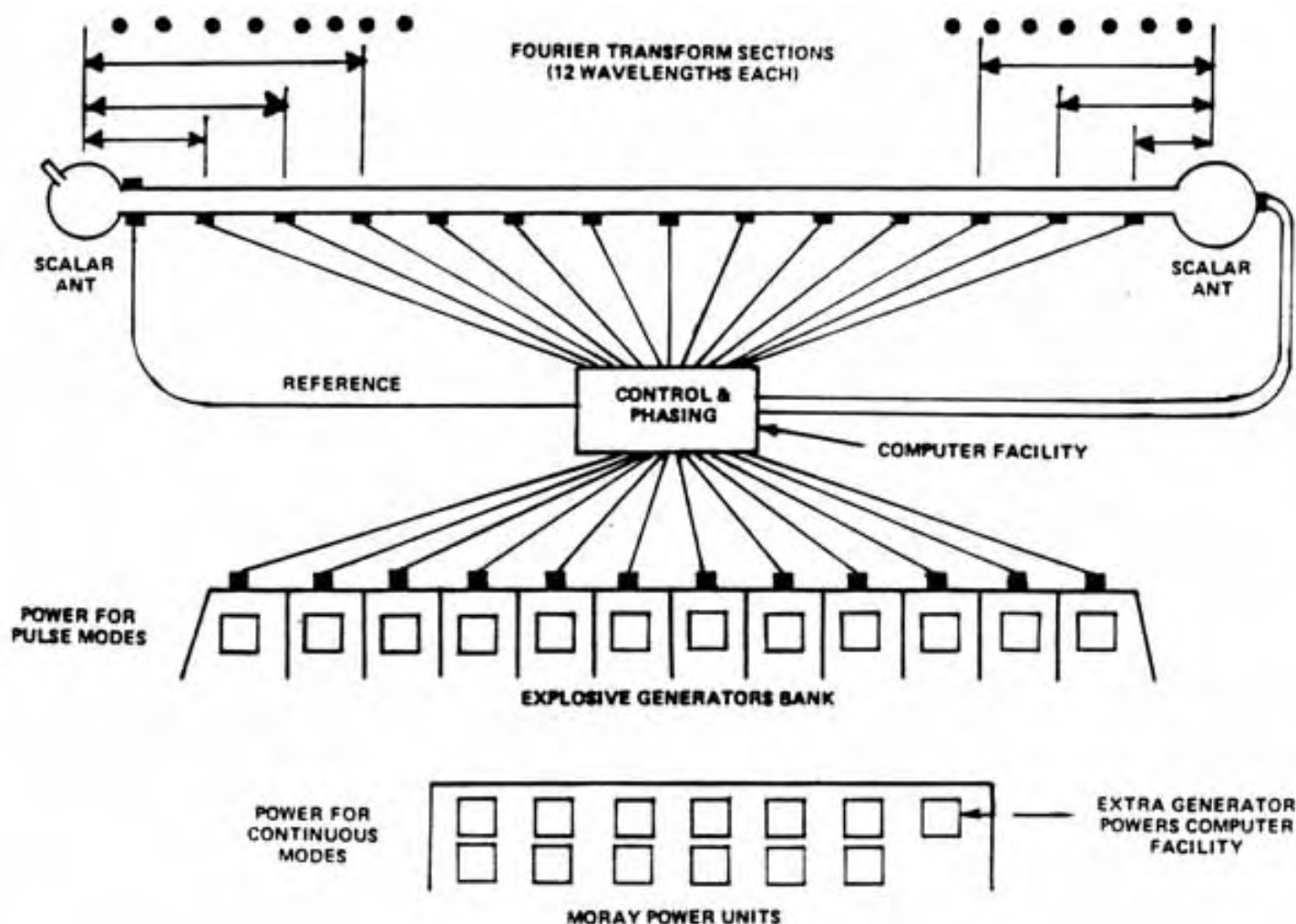


Figure 7. Tesla Weapons at Saryshagan

The Saryshagan howitzer actually is a huge Tesla scalar interferometer with four modes of operation. One continuous mode is the Tesla shield, which places a thin, impenetrable hemispherical shell of energy over a large defended area. The 3-dimensional shell is created by interfering two [Fourier-expansion, 3-dimensional scalar hemispherical patterns](#) in space so they pair-couple into a dome-like shell of intense, ordinary electromagnetic energy. The air molecules and atoms in the shell are totally ionized and thus highly excited, giving off intense, glowing light. Anything physical which hits the shell receives an enormous discharge of electrical energy and is instantly vaporized -- it goes pfft! like a bug hitting one of the electrical bug killers now so much in vogue.

If several of these hemispherical shells are concentrically stacked, even the gamma radiation and EMP from a high altitude nuclear explosion above the stack cannot penetrate all the shells due to repetitive absorption and reradiation, and scattering in the layered plasmas.

In the continuous shield mode, the Tesla interferometer is fed by a bank of [Moray free energy generators](#), so that enormous energy is available in the shield. A diagram of the Saryshagan-type Tesla



howitzer is shown in figure 7. Hal Crawford's fine drawing of the interferometer end of the Tesla howitzer is shown in figure 6. Hal's exceptional rendition of the Tesla shield produced by the howitzer is shown in figure 8.

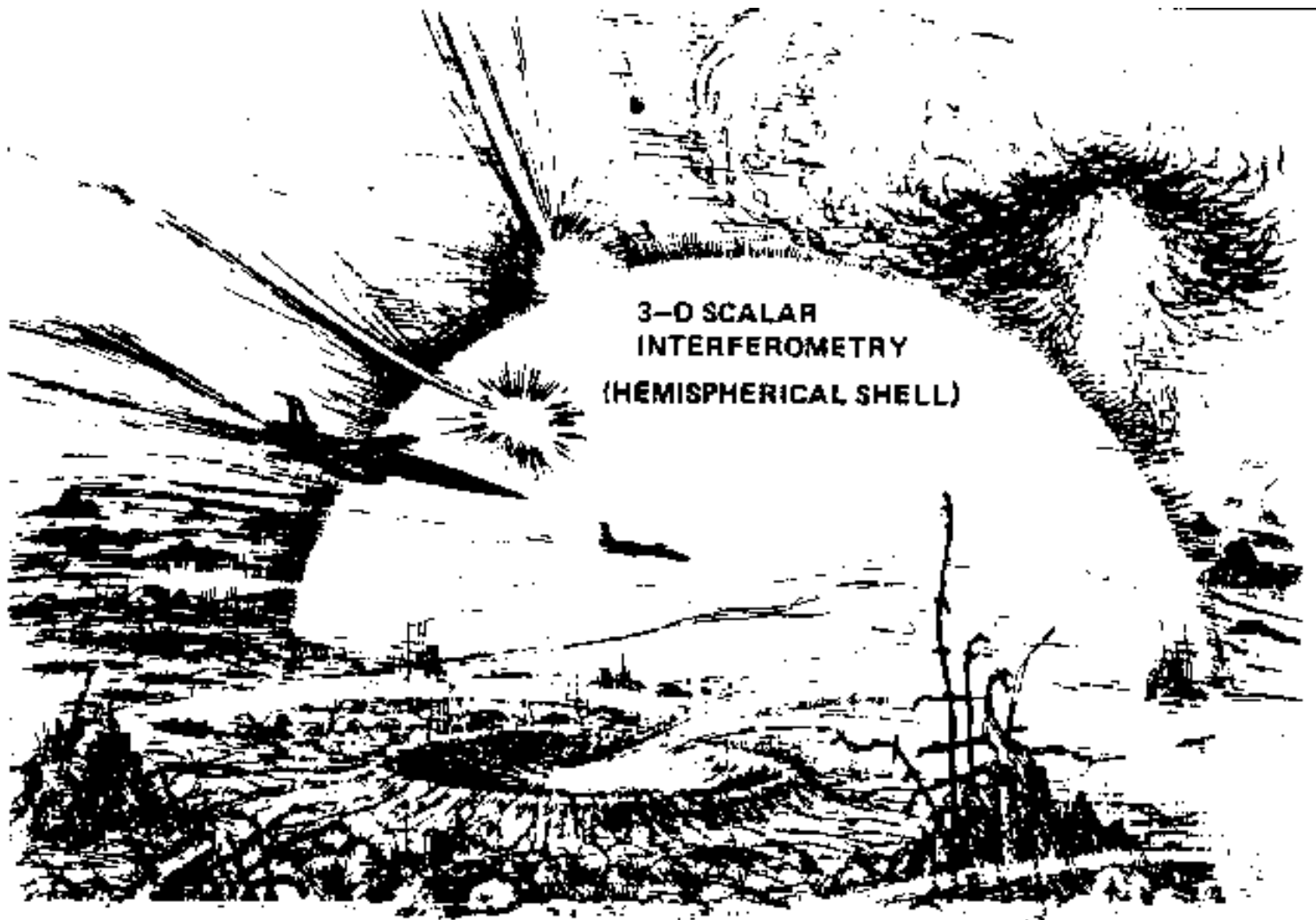


Figure 8. The Tesla Shield

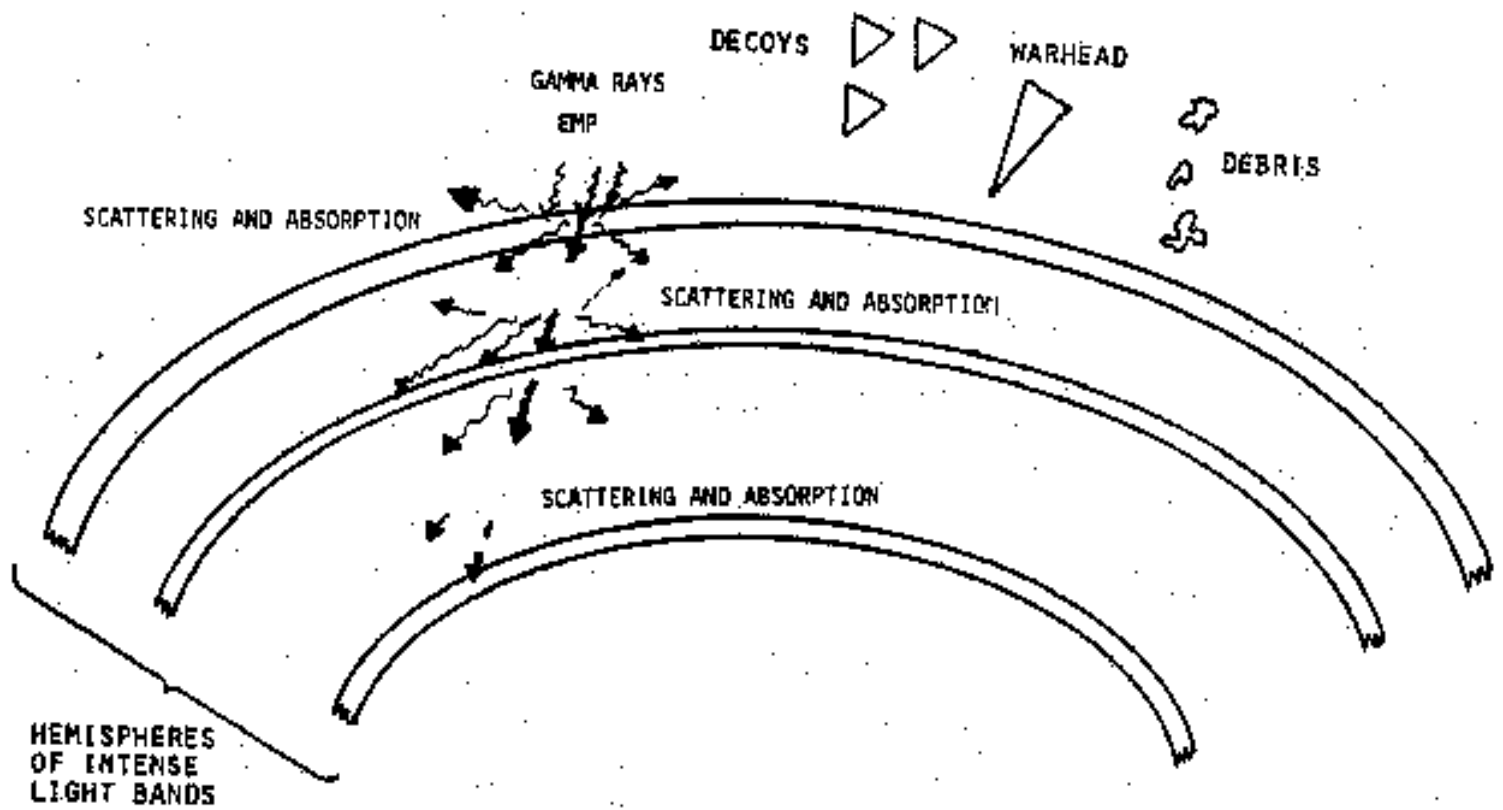
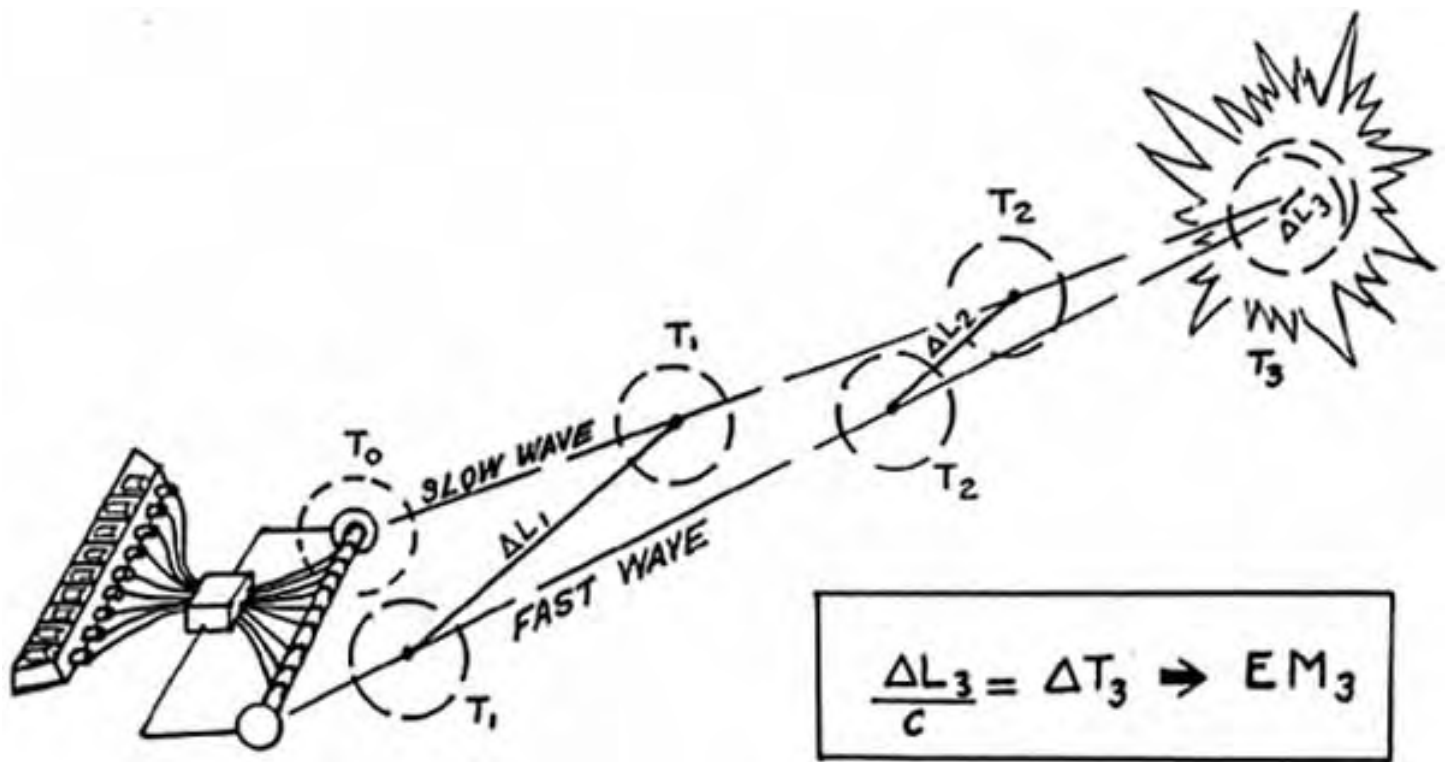


Figure 9. Tesla Terminal Area Defense System

In the pulse mode, a single intense 3-dimensional scalar phi-field pulse form is fired, using two [truncated Fourier transforms](#), each involving several frequencies, to provide the proper 3-dimensional shape (Figure 10). This is why two scalar antennas separated by a baseline are required. After a time delay calculated for the particular target, a second and faster pulse form of the same shape is fired from the interferometer antennas. The second pulse overtakes the first, catching it over the target zone and pair-coupling with it to instantly form a violent EMP of ordinary vector (Hertzian) electromagnetic energy. There is thus no vector transmission loss between the howitzer and the burst. Further, the coupling time is extremely short, and the energy will appear sharply in an "electromagnetic pulse (EMP)" strikingly similar to the 2-pulsed EMP of a nuclear weapon.

This type weapon is what actually caused the mysterious flashes off the southwest coast of Africa, picked up in 1979 and 1980 by Vela satellites. The second flash, e.g., was in the infrared only, with no visible spectrum. Nuclear flashes do not do that, and neither does superlightning, meteorite strikes, meteors, etc. In addition, one of the scientists at the Arecibo Ionospheric Observatory observed a gravitational wave disturbance -- signature of the truncated Fourier pattern and the time-squeezing effect of the Tesla potential wave -- traveling toward the vicinity of the explosion.





### TESLA HOWITZER (SCALAR INTERFEROMETER)

Figure 10. "Nuclear" Flashes off the Coast of Africa



**Lithuania - 10 Sep 1976 - British European Airways Flight #831  
between Moscow and London**

**CIA Report Released under FOIA**

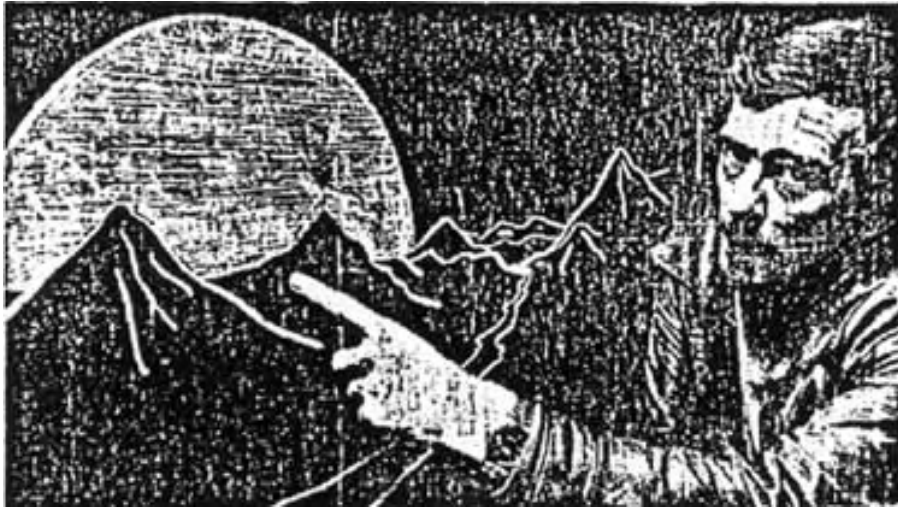
Figure 11. Continuous Tesla Fireball

The pulse mode may be fed from either [Moray generators](#) or -- if the Moray generators have suffered their anomalous "all fail" malfunction -- ordinary explosive generators. Thus the Tesla howitzer can always function in the pulse mode, but it will be limited in power if the Moray generators fail.

In the continuous mode, two continuous scalar waves are emitted -- one faster than the other -- and they pair-couple into vector energy at the region where they approach an in-phase condition. In this mode, the energy in the distant "ball" or geometric region would appear continuously and be sustained -- and this is Tesla's secret of wireless transmission of energy at a distance without any losses. It is also the secret of a "continuous fireball" weapon capable of destroying hundreds of aircraft or missiles at a distance. An example of a Soviet

test of this mode of operation is shown in figure 11.

## **Witness to a super weapon?**



**Nick Downie describes the strange lurid glow that flared silently over the Hindu Kush**

**THE SUNDAY TIMES, 17 AUGUST 1980**

(Multiple incidents in Sept., 1979)



**TEHERAN,  
IRAN 17 JUNE  
1966**

**SEEN FROM  
NEAR  
MEHRABAD  
AIRPORT**

**OBSERVED 4-  
5 MINUTES**

**SEEN BY 2  
AIRCRAFT**

**CIA REPORT RELEASED UNDER FOIA**

Figure 12. Tesla EMP Globe

The volume of the Tesla fireball can be vastly expanded to yield a globe which will not vaporize physical vehicles but will deliver an EMP to them to dud their electronics. A test of this mode is shown in figure 12. (See also Gwynne Roberts, "Witness to a Super Weapon?", the London Sunday Times, 17 August 1980 for several other tests of this mode at Saryshagan, seen from Afghanistan by British TV cameraman and former War Correspondent Nick Downie.)

If the Moray generators fail anomalously, then a continuous mode limited in power and range could conceivably be sustained by powering the interferometer from more conventional power-sources such as advanced magnetohydrodynamic generators.

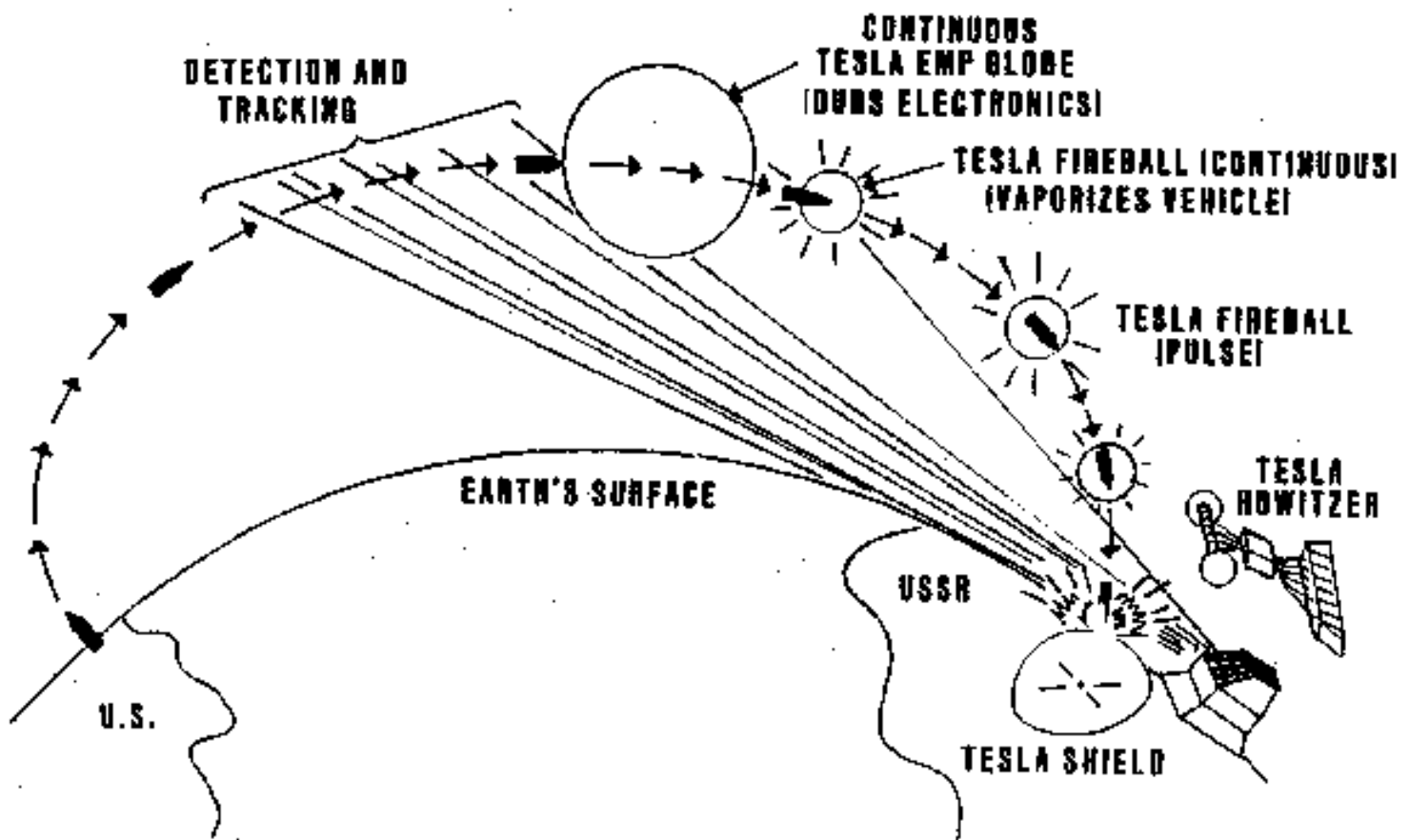


Figure 13. Tesla ABM Defenses

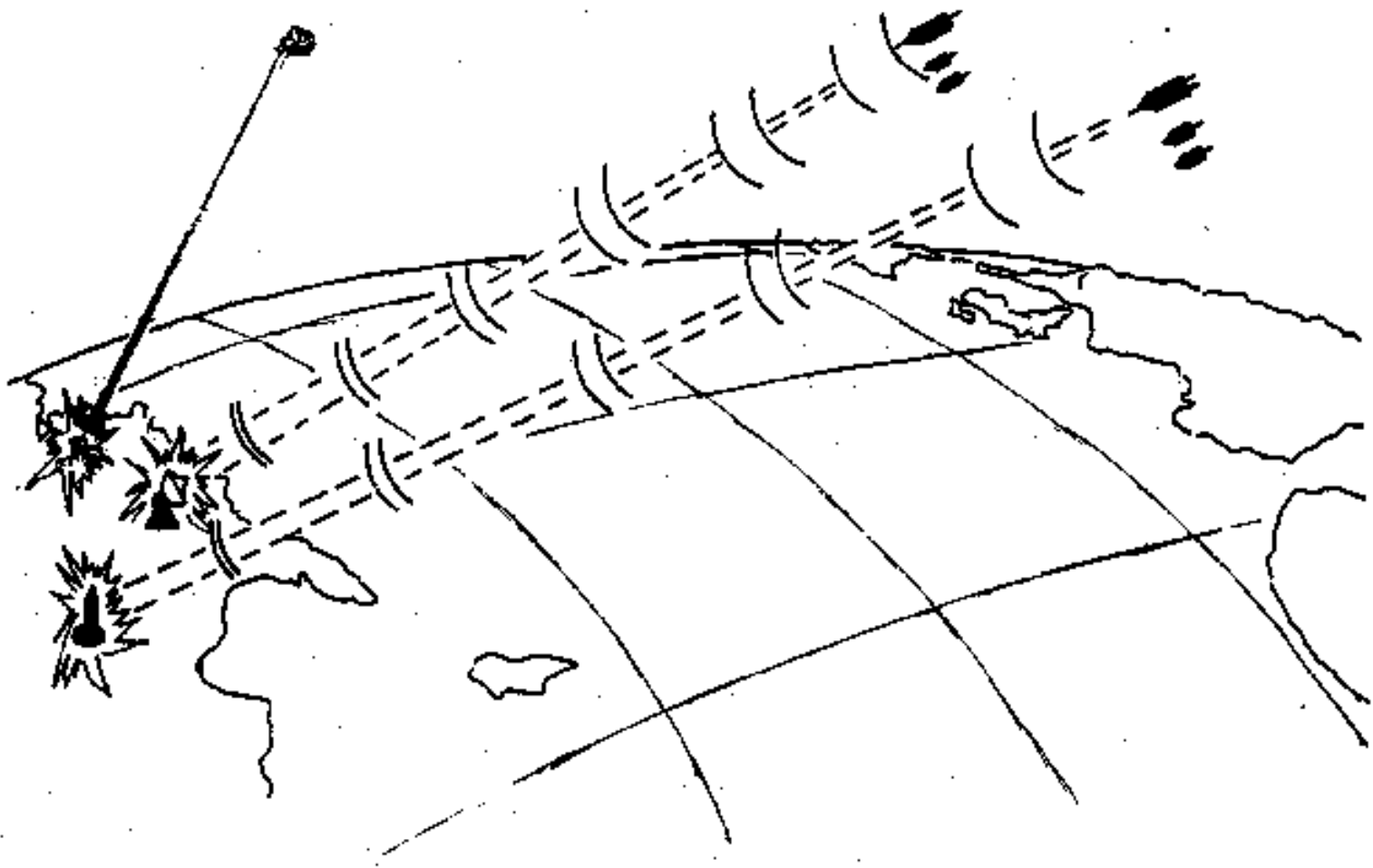


Figure 14. Moray/Tesla Technology: Star Wars Now

Typical strategic ABM uses of Tesla weapons are shown in figure 13. In addition, of course, smaller Tesla howitzer systems for anti-tactical ballistic missile defense of tactical troops and installations could be constituted of more conventional field missile systems using paired or triplet radars, of conventional external appearance, in a scalar interferometer mode.

With [Moray generators](#) as power sources and multiply deployed reentry vehicles with scalar antennas and transmitters, ICBM reentry systems now can become long range "blasters" of the target areas, from thousands of kilometers distance (figure 14). Literally, "Star Wars" is liberated by the Tesla technology. And in air attack, jammers and ECM aircraft now become "Tesla blasters." With the Tesla technology, emitters become primary fighting components of stunning power.

The potential peaceful implications of Tesla waves are also enormous. By utilizing the "time squeeze" effect, one can get antigravity, materialization and dematerialization, transmutation, and mindboggling medical benefits. One can also get subluminal and superluminal communication, see through the earth and through the ocean, etc. The new view of phi-field also provides a unified field theory, higher orders of reality, and a new super-relativity, but detailing these possibilities must wait for another book.

With two cerebral brain halves, the human being also has a Tesla scalar interferometer between his ears. And since the brain and nervous system processes

avalanche discharges, it can produce (and detect) scalar Tesla waves to at least a limited degree. Thus a human can sometimes produce anomalous spatiotemporal effects at a distance and through time. This provides an exact mechanism for psychokinesis, levitation, psychic healing, telepathy, precognition, postcognition, remote viewing, etc. It also provides a reason why an individual can detect a "stick" on a radionics or Hieronymus machine (which processes scalar waves), when ordinary detectors detect nothing. Unfortunately there is not room to develop the implications of this human Tesla interferometry in detail, for that must wait for yet another book, presently in its initial stages, that Hal Crawford and I are writing.

Table 5. Orders of Reality

- **PHOTONS ARE**
  - > **PAIR-COUPLED SCALARS**
  - > **VELOCITY-LIMITED TO C**
  - > **CARRIERS OF T**
- **PHOTON INTERACTION**
  - > **IS UBIQUITOUS**
  - > **PRODUCES  $\dot{T} = C$**
  - > **YIELDS 1st ORDER REALITY**
- **SCALAR O WAVES**
  - > **NOT VELOCITY-LIMITED**
  - > **YIELD HIGHER ORDER REALITIES**

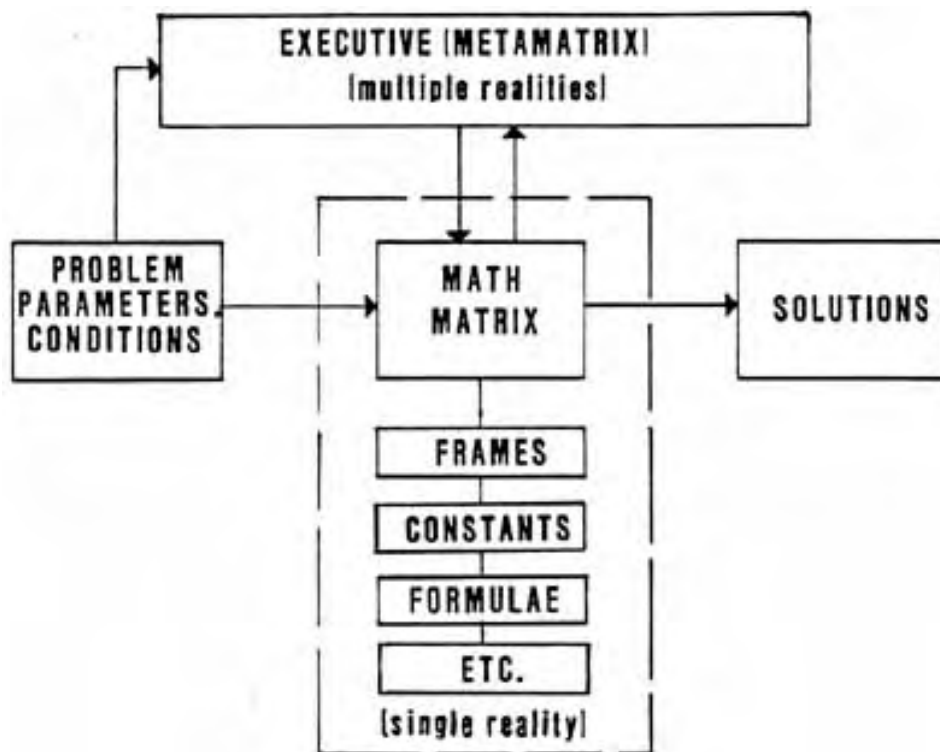


Figure 15. Implications of Tesla Potential

At the July 1981 U.S. Psychotronics Association's Annual Conference in Dayton, Ohio, I presented the first rough paper on the Tesla secret and scalar



interferometry. A videotape of the presentation was made and will shortly be available. I am also scheduled to make a special presentation at the Alternate Energy Conference in Toronto, Canada in latter October, 1981. A professional, videotaped two-hour presentation on this subject is also being prepared. Wide distribution of the material through the international underground physics and technology network has already been made. This time, God willing, Tesla's secret will not be suppressed for another 80 years!

And perhaps it is not yet too late. The material has cost me (now) some 16 years of agonizing labor and nearly \$100,000 of my own personal funds. No orthodox university, scientific group, foundation, or governmental agency would support such an effort, either financially or otherwise. Indeed, most ordinary journals will not even accept material on such matters. Nonetheless, the area is of overwhelming importance and I truly believe Tesla's lost secret will shortly affect the lives of every human being on earth.

Perhaps with the free and open release of Tesla's secret, the scientific and governmental bureaucracies will be shocked awake from their slumber, and we can develop defenses before Armageddon occurs. Perhaps there is hope after all -- for even Brezhnev, in his strange July, 1975 proposal to the SALT talks, seemed to reveal a perception that a turning point in war and weaponry may have been reached, and that human imagination is incapable of dealing with the ability to totally engineer reality itself. Having tested the weapons, the Soviets must be aware that the ill-provoked oscillation of timeflow affects the minds and thoughts -- and the very lifestreams and even the collective species unconsciousnesses -- of all lifeforms on earth. They must know that these weapons are two-edged swords, and that the backlash from their use can be far more terrible to the user than was the original effect to his victim.

If we can avoid the Apocalypse, the fantastic secret of Nikola Tesla can be employed to cure and elevate man, not kill him. Tesla's discovery can eventually remove every conceivable external human limitation. If we humans ourselves can elevate our consciousness to properly utilize the Tesla electromagnetics, then Nikola Tesla -- who gave us the electrical twentieth century in the first place -- may yet give us a fantastic new future more shining and glorious than all the great scientists and sages have imagined.

## [References](#)

## [The Tom Bearden Website](#)

### REFERENCES

1. Whittaker, E. T., Proc. Lond. Math. Soc. 1, 367 (1903).
2. Debye, P., Ann. Phys. (Leipz.) 30, 57 (1909).
3. Bromwich, T. J. I'A. Phil. Trans. A, 220, 175 (1920); also Phil. Mag., 38, 143 (1919).
4. Laporte, O. & Uhlenbeck, G. E., Phys. Rev. 37, 1380 (1931).
5. Nisbet, A., Proc. R. Soc. London A 231, 250 (1955).
6. Essex, E. A., Am. Jour. Phys. 45, 1099 (1977).
7. Braunlich, P., Ed., Thermally Stimulated Relaxation in Solids, Springer-Verlag, New York, 1979.
8. Ratzlaff, John. T., Dr. Nikola Tesla: Selected Patent Wrappers, Volumes I, II, III, & IV, Tesla Book Company, 1580 Magnolia Avenue, Millbrae, CA 94030, 1980.
9. Ratzlaff, John T. & Anderson, Leland I., Dr. Nikola Tesla Bibliography, Ragusan Press, 936 Industrial Ave., Palo Alto, CA 94303, 1979.
10. "Tesla- 85th Birthday," N. Y. Sun, July 11, 1941. (Tesla says he could build, within three months, a plant at a cost of \$2 million that would melt the engines of an approaching aircraft at a distance of thousands of miles.)
11. "Tesla Promises to Light Dark Spot on Moon. It's Part of a Scheme of His for Interplanetary Radio; Distance Means Nothing. Has 4 New Inventions. Tells of Them on 81st Birthday; 2 Nations Honor Him," N. Y. Herald Tribune, July 11, 1937.
12. O'Neill, John J., "In the Realm of Science: Tesla, who predicted radio, now looks forward to sending waves to the Moon," N. Y. Herald Tribune, Aug. 22, 1937. (Inventor hopes to use energy-transmitting device to make spot glow on the lunar surface. Theory is traced to 1897 experiments. His mechanism is to use vast natural forces, possibly cosmic rays.)

13. "Tesla, 80, Reveals New Power Device," N. Y. Times, July 11, 1936, p. 13, col. 2. (Says his wireless system of power transmission will supply the earth with energy for industry.)

14. Sparling, Earl. "Nikola Tesla, at 79, Uses Earth to Transmit Signals; Expects to have \$100,000,000 Within Two Years," N. Y. World-Telegram, July 11, 1935. (Inventor tells of 'quake' in his laboratory that brought police and ambulances during experiments with mechanical oscillator.)

15. "Tesla's Controlled Earth Quakes Power Through the Earth, A Startling Discovery," N. Y. American, July 11, 1935, Section 2. (Announces the successful passage of an induction current with a varying flux through a circuit without the use of a commutator. Cosmic ray studies indicate many tenets of theory of relativity to be fallacious. Possible to convey mechanical effects to any distance.)

16. "Tesla, 79, Promises to Transmit Force -- Transmission of Energy Over World," N. Y. Times, July 11, 1935, p. 23, col. 8. (Tesla has plans to send energy over the entire world. Measurement of cosmic rays said to be 50 times greater than the speed of light, demolishing the theory of relativity.)

17. Tesla, Nikola, "Expanding Sun Will Explode Some Day, Tesla Predicts," N. Y. Herald-Tribune, Aug. 18, 1935. (Present literature on cosmic rays is erroneous. Some cosmic rays reach speeds 50 times that of light. Sun will increase in mass and energy and will ultimately explode. Tesla's view is that the condensation of primary substance is going on continuously. Finds secret of cosmic rays in the positive electrical charge of the sun. Discusses radioactive emanations.)

18. "3 Tesla Inventions -- Famous Scientist Will Tell Them. Tomorrow," N. Y. Sun, July 9, 1935. (One of the discoveries is a new way of transmitting energy, an entirely new principle, nothing like wireless. Also method of harnessing cosmic rays.)

19. Welshimer, Helen, "Dr. Tesla Visions the End of Aircraft in War," Every Week Magazine, Oct. 21, 1934, p. 3. (Claims to have created a new agent, which kills without a trace and yet pierces the thickest armor. Can destroy armies or aircraft.)

20. Tesla, Nikola. "Tesla on Power Development and Future Marvels," N. Y. World Telegram, July 24, 1934. (Source of reference is Prodigal Genius by J. J. O'Neill, p. 241. Reply to articles of June 29, July 12, and July 13, 1934. Praises Westinghouse and Insul to create the power system he had barely suggested in 1893. With regard to death ray effect, Tesla employs an agent

in which intensity does not diminish with the square of the distance.)

21. Dunlap, Orrin E., Jr., "Tesla Sees Evidence That Radio and Light Are Sound," N. Y. Times, Apr. 8, 1934, X, p. 9, Col. 1. (Tesla points to errors of the past, explains radio as he sees it at age 77. He expects television.). (Note: Sound is a longitudinal wave -- as is the Tesla wave. Hertzian waves are transverse waves, not longitudinal.)

22. Bird, Carol, "Tremendous New Power Soon to be Unleashed," Philadelphia Public Ledger, Sep. 10, 1933, Magazine Section, p. 6. (Revolutionary power project by Tesla, who is also completing process for thought photography.) (Note: Here we have a possible clue that the same principle may be used both in Tesla's energy device and in Tesla's approach to thought photography.)

23. "Tesla 'Harnesses' Cosmic Energy," Phila. Public Ledger, Nov. 2, 1933. (A principle has been discovered to derive cosmic energy which operates the universe. Power is "everywhere present in unlimited quantities." Will eliminate the need for coal, oil, gas, or any of the common fuels.) (Note: Was Tesla referring to what we today call "zero-point energy of the vacuum"? His principle will tap it.)

24. Blakeslee, Howard W., "Discovery of Force to Surround Nations & Smash Attacker Claims of Aged Inventor - Nikola Tesla Makes Announcement on 75th Birthday -- Will Turn Plans Over to Geneva," Minneapolis Tribune, July 11, 1934. (Note: Here the inventor is referring to the "Tesla Shield.")

25. "Tesla, at 78, Bares New 'Death Beam'", N. Y. Times; July 11, 1934, p. 18, col. 1. (Invention powerful enough to destroy 10,000 airplanes at 250 miles away. Defense weapon only.)

26. Alsop, Joseph W., Jr., "Beam to Kill Army at 200 Miles Tesla's Claim on 78th Birthday," N. Y. Herald Tribune, July 11, 1934, pp. 1, 15. (Beam of force similar to death ray, involves four electrical devices. Can also be used in peacetime to transmit power over distances limited only by the curvature of the earth.) (Note: In this reference, we note that the Tesla death ray and the Tesla wireless transmission devices apparently use the same effect or basic principle. There appear to be four devices involved in an operational system.)

27. "A Giant Eye to See 'Round the World' ", Albany Telegram, Feb. 25, 1933. (Based on the mechanism of the human eye. The first two parts of Tesla's invention have been completed. Will allow man to see any part of the earth.) (Note: Similarity of binocular vision to interferometry.)

28. Tesla, Nikola. "Pioneer Radio Engineer Gives Views on Power," N. Y. Herald Tribune, Sept. 11, 1932. (Tesla says wireless waves are not electromagnetic, but sound in nature. Holds space is not curved.) (Note again that sound waves are longitudinal, as are Tesla's waves. Electromagnetic waves are transverse.)

29. "No High-Speed Limit, Says Tesla, " Literary Digest, Nov. 7, 1931, p. 28. (Speeds greater than light, deemed impossible by the Einstein theory, have been accomplished. As early as 1900 Tesla showed that power from his transmitter passed over the earth at a speed of 292,830 miles per second.) (Note: As is well known, velocity represents the rotation of an object out of the normal 3-dimensional space toward a 4th dimensional direction. The speed of light,  $c$ , represents a full orthogonal turn. A normal electromagnetic wave, being transverse oscillatory, is a priori limited to a single orthogonal turn, for that is all it possesses. It thus moves at the speed  $c$ . A longitudinal scalar wave, on the other hand, need not be so limited at all.)

30. O' Neill , J. J. "Sun Emits Super Ray, Nikola Tesla Asserts, " Brooklyn Eagle, Feb. 8, 1932, p. 4, col. 1. (Note: Logically, the sun should also emit scalar waves as well as transverse vector waves.)

31. O'Neill, J. J., "Tesla Cosmic Ray Motor May Transmit Power 'Round Earth", Brooklyn Eagle, July 10, 1932, A, 1:4, pp. 1, 17. (Efforts by Tesla to harness cosmic rays started 25 years ago, and he now announces success in operating a motive device by means of these rays. Hopes to build a motor on a large scale. )(Note: possibly implies that all these Tesla devices for the last 25 years have been dealing with the same basic principle.)

32. "Tesla, 76, Reports His Talents at Peak," N. Y. Times, July 10, 1932, p. 19, col. 1. (New invention in tapping tremendous and unused source of energy. One invention to permit generation of all kinds of rays of almost unlimited intensity.) (Note: By scalar interferometry, electromagnetic waves of any frequency -- and hence of any "type" can be assembled by coupling the appropriate scalars together. A Hertzian wave is just two coupled Tesla scalar waves.)

33. Tesla, Nikola, "Man's Greatest Achievement," N. Y. American, July 6, 1930, p. 10. (Editorial Section). ("To create and annihilate material substance, cause it to aggregate in forms according to his desire...would place him beside his Creator and fulfill his ultimate destiny.") (Note: Here Tesla seems to be referring to controlled materialization and dematerialization of matter.)

34. Tesla, Nikola. "World System of Wireless Transmission of Energy," Telegraph & Telephone Age -- N. Y., Oct. 16, 1927, pp. 457-460.

Transmission of power without wires is not a theory, but "a fact demonstrated by Tesla." Mode of propagation of currents from transmitter has mean speed 57% greater than Hertz waves.) (Note: a faster than light, non-Hertzian type of wave is involved. The Tesla wave is not a normal Hertzian wave.)

35. Secor, H. Winfield, "The Rogers Underground Wireless, Electrical Experimenter, Mar., 1919, pp. 787-789, 832-835, 839. (Rogers system does away with aerial wires.)

36. Gernsback, Hugo, "Underground Wireless," Electrical Experimenter, Mar. 1919, p. 762. (Development of James H. Rogers. Receives messages from Europe during thunderstorm. Tesla agrees that messages are not Hertzian waves.)

37. Tesla, Nikola, "The True Wireless," Electrical Experimenter, May 1919, pp. 28-30, 61-63, 87. (Tesla says Hertz wave theory is a delusion. Signals must be from earth currents. Note again that Tesla does not like Hertzian waves, but himself has something more fundamental.)

38. Tesla, Nikola. "The Effects of Statics on Electrical Transmission," Electrical Experimenter, Jan., 1919, pp. 627, 658. (Tells of defects in Hertz waves. System devised by Tesla releases energy at infinite velocity.) (Note: electrostatic potential is already known to be able to travel at infinite velocity. See Jackson, Classical Electrodynamics, 2nd Edition, 1975, p.223. This is strong evidence that Tesla used scalar potential waves or Ø-fields.)

39. Bot tone, A., Nikola Tesla's New Wireless," Electrical Engineer, London, Dec. 24, 1909, p. 893. (Experiments conducted on Long Island have resulted in principles of transmission which are direct opposite of Hertzian wave transmission.) (Note: In other words, using uncoupled scalar waves -- Tesla waves instead of pair-coupled scalar waves -- Hertzian waves?)

40. Tesla, Nikola. "Electrical Control of the Weather Will Soon Be an Accomplished Fact," St. Louis Republic, Nov. 15, 1908, V, p. 3. (Tesla concurs in concept of electrical control of weather.)

41. Swezy, Kenneth M. , "Nikola Tesla, " Science, May 16, 1958 , pp. 1147-1158. (Electricity today is generated, transmitted, and converted to mechanical power by means of his inventions.)

42. Ramsay, Jack, "Cableless Power, " Electronics ( Digest ) , July 22, 1960, pp. 6, 8. (Soviet attempt at development of wireless power transmission, but a failure according to Swedish observers, and the idea having been bandied about in the U. S. since Tesla.) (Note: Establishes that the Soviets were at least trying to work with the Tesla techniques.)



43. Anderson, Leland I., "Correspondence: Sub-Surface Communications Systems," Proceedings of the I.R.E., Mar., 1961, p. 645. ( Reference to subsurface or "earth current" communication systems. Pioneering work by Nikola Tesla and James H. Rogers.)
  
44. Rebert, Edwina, "Fireballs For Defense?", Christian Science Monitor, Feb. 7, 1962, p. 9c. (Feature article on possibility of using ball lightning as defense weapon -- may be inspired by early experiments of Tesla at Colorado Springs.)
  
45. Matsch, Lee and Rice, Warren, "Potential Flow Between Two Parallel Circular Disks with Partial Transmission," Journal of Applied Mechanics, Trans. ASME, Mar., 1967, Vol. 34, Series E., No.1, pp. 239-240. (Reference article -- bladeless turbines.)
  
46. Lagus, George W., "The Use of Ground in High-Frequency Circuits," Radio-TV Experimenter and Science and Electronics, June-July, 1969, PP. 71, 72. (Tesla gave several demonstrations of feasibility of electrifying large areas of land by ground propagation of high frequency currents.)
  
47. Jamison, S. L. , "Life Energy, " Probe. The Unknown, June , 1973, pp. 3,4. (Letter to editor -- report that vitamins and minerals could be impressed on the body using a Tesla coil.)
  
48. Jueneman, F. B. J. , "The First Law of Thermodynamics, " Industrial Research, Feb., 1974, pp. 17-18. (Nikola Tesla, at Colorado Springs in 1899, found that the earth was a large electron sink, and electrical storms generated standing wave potentials.)
  
49. Puharich, Andrija, "The Work of Nikola Tesla Ca. 1900 and its Relationship to Physics, Bioenergy and Healing," paper read at the International Inter-disciplinary Conference on Consciousness and Healing, Oct. 13, 1976, University of Toronto.) ,
  
50. Golka, Robert K. and Bass, Robert W., "Tesla's Ball Lightning Theory, a BKG-Wave, The Ransworth Effect, and the 'Hydrotron' Electrostatic-Inertial Self-Confined Plasmoid Concept." (Paper presented at the Annual Controlled Fusion Theory Conference, San Diego, California, May 4-6, 1977.)
  
51. Popovic, Prof. Vojin, "Research of Nikola Tesla in the Light of His Diary From Colorado Springs," 10 pp. (Diary contains details of investigations for determining nodal points in the earth as a conductor of waves. Comments on "fire globes.")

52. Curtis, George D., PhD, "An Electromagnetic Radiation Pattern Over the Ocean," Undersea Technology, Vol. 5, no.8, August 1964. Curtis reports the presence of a previously unknown weak electromagnetic radiation pattern over the ocean. When all known effects are accounted for, the anomalous pattern still remains.

53. Santilli, R. M., "Partons and Gravitation: Some Puzzling Questions," Annals of Physics, Vol. 83, No.1, March 1974, pp. 108-157. In this paper Santilli proved that one of the cornerstone assumptions of physics -- that electric field and gravitation are separate things -- is false. One is therefore left with only two alternatives: either they are totally the same thing, or they are partially the same thing. (Comment: Note that the ~4 Tesla potential provides the unifying connection.)

54. Science News, Vol. 113, No.1, January 7, 1978, p. 3. A photograph by T. Kuribayashi of the earthquake lights involved in the Matsushiro earthquake swarm (1965-1967). This is the only known photo of earthquake lights.

55. Wiedemann, C. Louis, "Results of the N.J. 'Spook Light' Study," Vestigia Newsletter, Vestigia, RD 2, Brookwood Rd., Stanhope, NJ 07874, May 1977, pp. 1-3. This article describes an ongoing Vestigia experiment in which a nocturnal light or "mystery light" was scientifically photographed in conjunction with visual sightings and instrumental recordings of data. Various later issues of the Vestigia Newsletter contain other update articles on the phenomenon.

56. Moray, T. Henry, The Sea of Energy, fifth edition, History and Biography by John E. Moray, Foreword by Tom Bearden; Cosray Research Institute, 2505 South 4th East, Salt Lake City, Utah 84115, 1978. In addition to his free-energy device, Moray also built a special radio which he used to clearly listen to Admiral Byrd at the South Pole. No static was experienced on Moray's radio, showing he was not using ordinary electromagnetics. In addition, he built a device which he could tune to listen to persons several miles distant, so that their voices sounded as if they were immediately nearby. Both these devices were demonstrated to a visiting Russian Colonel/PhD.

57. I. Procaccia, J. Ross, Science, 198, 716 (18 Nov 1977). Describes Prigogine's Nobel Prize-winning work on thermodynamics of nonlinear systems far from thermodynamic equilibrium. Prigogine's work shows that such a system can indeed demonstrate negentropy. Out of unrestrained disorder can and does arise order, contrary to the old thermodynamics.

58. "Persinger's 'Earthquake Lights' ...Ho-Hum," Frontiers of Science, Vol. III, No.3, March-April 1981, p. 15-16. Gives cogent and "fatal" objections to

Persinger's "earthquake light" scheme for explaining UFO's. Mentions Dr. Brian Brady's experiments obtaining fast, short electrical lights or sparks from crushing quartz-bearing granite cylinders. (Comment: Brady's experiments are certainly repeatable, so it is true that "earthstress lights" can be produced at a distance, although the piezoelectric effect alone in no way explains the production of the phenomena outside the piezoelectric crystal. The fact that UFO's occurring near a fault zone are not necessarily repeatable simply means that at least one other major factor must be involved in the production of UFOs than is involved in the production of earthstress lights. UFOs may sometimes involve scalar interferometry from a fault zone, but other causative factors must also be involved. Earthstress lights, on the other hand, need have no additional causative factors than what lies in the earth itself.)

59. Jackson, John David, Classical Electrodynamics, Second Edition, John Wiley & Sons, New York, 1975, p. 223.

60. Roberts, Gwynne, "Witness to a Super Weapon ?", The Sunday Times, London, 17 August, 1980. Article deals with a strange semicircular phenomenon seen inside the Soviet Union from Afghanistan in September, 1979 by Nick Downie, a former member of the SAS who has established a considerable reputation as a war cameraman. Downie saw the phenomenon twice, and later met an Afghan who had seen it several months before. A possibly related phenomenon is reported in Brackenridge, M., "Unidentified Phenomenon," Marine Observer, 48: 21-22, 1978. Note the first "nuclear flash" was detected by Vela satellite on September 22, 1979 - close in time to Downie's sightings.

61. Bearden, Tom and Crawford, Hal, "Possible Soviet Test of a Tesla Weapon," Specula, Journal of the A.A.M.S., Vol. 3, No.2, April-June 1980, p. 29. See also Specula 3, 2, 30-32 by Bearden and Crawford. These reports are from CIA reports released under the Freedom of Information Act.

62. Bearden, Thomas E., The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980.

63. Muldrew, D. B., "Generation of Long-Delay Echoes," Journal of Geophysical Research, 84: 5199-5215, 1979. For anomalous long delays of electromagnetic signals in the atmosphere, Muldrew favors a rather complex interaction between signals from separate transmitters that (theoretically at least) can create a long-lived electrostatic wave that travels in the ionosphere -- a sort of natural memory device. The coded signals could then be read out much later when the proper natural conditions developed. Delays of up to 40 seconds might be possible with this "ionospheric memory."

64. Zhugzhda, Yu. D., Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, "Magnetogravitational Waves in a Conducting Isothermic Atmosphere," Moscow ASTRONOMICHSKIY ZHUGZHDA, Vol. 56, No.1, 1979, pp. 74-83. Among other things, the paper indicates the possibility of transforming longitudinal waves into transverse waves in the region of a strong magnetic field.
  
65. Ranada, Antonio and Vazquez, Luis, "Kinks and the Heisenberg Uncertainty Principle," Physical Review D, Vol. 19, No.2, 15 January 1979, pp. 493-495. Shows that the velocity and position of the center of a kink, soliton, or solitary wave can be known with arbitrary precision, in violation of the Heisenberg uncertainty principle. (Comment: A Fourier-transformed scalar Tesla wave pattern is either a soliton or closely related to it.)
  
66. Don Moser, Photographs by Blair Pittman, "Big Thicket of Texas," National Geographic, Vol. 146, No.4, October 1974, pp. 504-529. The author photographed a "ghost light" or nocturnal spooklight -- i.e., an earth's tress light. The photo is shown in the article.
  
67. Gehring, Gillian, "Actinide magnetism: an extraordinary tale," Nature, Vol. 279, 3 May 1979, pp. 16-18. Anomalous magnetic properties -- including spin orbit coupling as a large effect -- are exhibited by actinide intermetallics containing uranium. Present theory cannot explain these effects.
  
68. Gintsburg, M. A., Institute of Terrestrial Magnetism, the Ionosphere, and Radio-Wave Propagation, Academy of Sciences of the USSR, Astron. Zh. 51: 218-221, Jan-Feb 1974, English translation in Sov. Astron., Vol. 18, No.1, July-August 1974, pp. 128-130. Among other things, the article points out that thus far a Fourier analysis in mass electrodynamics has not been made. One property characteristic of mass electrodynamics is the existence of longitudinal electromagnetic waves in vacuo, i.e., longitudinal photons. They have not yet been discovered but theoretically they are entirely possible.
  
69. Burman, R., "A Photon rest mass and the propagation of longitudinal electric waves in interstellar and intergalactic space," J. Phvs. A: Math. Nucl. Gen., Vol. 6, March 1973, pp. 434-444. This paper on longitudinal electric waves in plasma may be very important. Weber may be detecting longitudinal electric waves. Proca waves can go faster or slower than  $c$ .
  
70. Klass, Philip J., "Anti-Satellite Laser Use Suspected," Aviation Week & Space Technology, December 8, 1975, pp. 12-13. Some details on the "laser blinding" of U. S. satellites by the Soviets. On one occasion, the satellite was blinded for 4 hours. (Comment: difficult to explain with current laser

technology, but simple to explain with Tesla scalar interferometry.)

71. "Soviets Build Directed-Energy Weapon," Aviation Week & Space Technology, July 28, 1980, pp. 57-50. Presents a background summary in Soviet particle beam weapon work, particularly the device being constructed at Saryshagan.

72. "Scientists Fail to Solve Vela Mystery," Science, Vol. 207, 1 February 1980, pp. 504-506. See also article in Science, 30 November, 1979.

73. "Satellite Evidence Shows 'Possibility' of Nuclear Test, DOD Says," Aerospace Daily, October 29, 1979, p. 286.

74. "A Flash of Light," Newsweek, November 5, 1979, pp. 64-65.

75. "Was It a Nuclear Device?", Newsweek, July 21, 1980, p. 19.

76. "A Nuclear Blast -- or 'Zoo Animals'?", Newsweek, April 7, 1980, p. 21.

77. "Diverging Views," Washington Roundup, Aviation Week & Space Technology, July 21, 1980, p. 15.

78. Klass, Philip J. , "Clandestine Nuclear Test Doubted," Aviation Week & Space Technology, August 11, 1980, pp. 67, 69, 71-72.

79. "Debate Continues on the Bomb That Wasn't," Science, Vol. 209, 1 August 1980, pp. 572-573.

80. "Navy Lab Concludes the Vela Saw a Bomb," Science, Vol. 209, 29 August, 1980, pp. 996-997.

81. Bloch, Ingram and Crater, Horace; "Lorentz-invariant potentials and the nonrelativistic limit," Am. J. Phys. 49(1), Jan. 1981, pp. 67-75. Among other things, this interesting paper points out some decidedly unusual and unfamiliar influences of the size of the scalar potential upon what is considered nonrelativistic behavior. For scalar potential energy of appreciable size relative to a particle's rest energy, ordinary Newtonian mechanics and the Schrodinger equation may be inadequate, even if  $v/c$  is small. This reference by itself is sufficient to establish that  $\phi$ -field alone can alter the flow rate of time.

82. Semon, Mark D. and Schmieg, Glenn M., "Note on the analogy between inertial and electromagnetic forces," Am. J. Phys. 49(7), July 1981, pp. 689-690. Compares physical forces in a rotating frame with electromagnetic forces in a Newtonian frame. The transverse mechanical force in a rotating

frame is associated with an induced EMF in a Newtonian frame.

83. Harlacher, Von Wolfgang M., "Bomben aus dem Hyperraum," Esotera, 4 April 1979, pp. 359-365.



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## **ANALYSIS OF SCALAR/ELECTROMAGNETIC TECHNOLOGY**

by Lt. Col. T.E. Bearden (retd.), 1990  
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### **Historical Background of Scalar EM Weapons**

by Lt. Col. T.E. Bearden (retd.), 1990

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Colonel Bearden is a nuclear engineer, wargames analyst, and military tactician with over 26 years experience in air defense systems, tactics and operations, technical intelligence, antiradiation missile countermeasures, nuclear weapons employment, computerized wargames and military systems requirements.

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[This was a paper hastily whipped together, some years ago, to be able to send an abbreviated background paper to correspondents. The history prior to this paper runs from Hamilton and his quaternions to Maxwell and his quaternion theory, to Heaviside's vector curtailment of Maxwell's theory, to Nikola Tesla, to Whittaker, to Einstein and relativity, to Kaluza and Klein, and to the beginning of quantum mechanics.]

We begin our history in 1939 at [T.H. Moray's lab in Salt Lake City](#). In that year, a Russian agent obtained detailed drawings of Moray's specialized amplifier which extracted energy from the powerful quantum mechanical fluctuations of vacuum. [Moray's radiant energy device](#) weighed 55 pounds and produced 50 kilowatts of power without conventional input. Numerous demonstrations are documented by engineers, scientists, and community leaders. After extensively testing Moray's device and obtaining the drawings by subterfuge, the Soviet agent destroyed the device. Moray, a truly great pioneer who was unjustifiably ignored in his time, had expended several hundred thousand dollars and exhausted his funds on the first unit. He was never financially able to rebuild it.

Thus in 1939 the Soviets obtained the secret, detailed drawings for a 29-stage electromagnetic device far ahead of its time. Moray had made the first germanium transistor, an amorphous pellet of multiple, finely powdered ingredients, sintered under heat and pressure to lock-in stress, and containing minute interfaces (very tiny built-in cracks) which acted as tiny scalar EM interferometers. Over the years Moray had painstakingly constructed 29 special tubes, each comprised of a blown quartz envelope containing several (usually three) of his transistor pellets. Only one in 300 of Moray's tubes would work, and thousands had been built to obtain the 29 good ones used in Moray's radiant energy amplifier. Each of Moray's pellets in the tube produced a vacuum state far from thermodynamic equilibrium, and the tri-assembly functioned as a macroscopic scalar interferometer and collector. Moray's 55-pound amplifier curved local spacetime and produced 50 kilowatts of usable load power from the curved vacuum source itself. Additional power could be taken from intermediate stages as well.

In short, Moray had produced a "Prigogine" transistor, still slightly more advanced than the transistors of today. [Ilya Prigogine received the Nobel Prize a few years ago for developing a new thermodynamics of systems far from thermodynamic equilibrium. Negative entropy is possible in such a system.]. Greatly stimulated by Nikola Tesla's repeated pronouncement that the ether was a sea of energy, Moray had painstakingly developed his special transistors, and arranged an assemblage of them to form a scalar interferometer and collector of the disintegrated "energy" (virtual particle flux) of vacuum, integrating it into real observable energy fed to a load. Some day [Moray](#), together with Tesla, will be recognized as the first great scientific geniuses who succeeded in engineering scalar electromagnetics, electrogravitation, local general relativity, and Prigogine's new thermodynamics.

So in 1939 detailed drawings of Moray's unit were obtained and forwarded to Russia, along with details of experiments that the Soviet agent performed with the device in Moray's laboratory. Moray's lab still stands in Salt Lake City, Utah, operated by his son, John Moray, who has faithfully carried on his father's work.

However, in 1939 World War II was looming ominously on the horizon. Japan had started her expansive march in the Far East in 1931. In Germany, the Nazi Party and Adolf Hitler had risen to power in 1933. Italy had moved against Ethiopia in 1935-1936. From 1936 to 1939, Italy, Germany, and the Soviet Union were unofficially involved in the Spanish Civil War, testing weapons for a wider new conflict in the future. The Sino-Japanese War in China (1937-1942) was proceeding. Germany had seized Austria and most of Czechoslovakia to the dismay of the West.

On September 1, 1939, Germany invaded Poland, and two days later Great Britain and France declared war. British and allied troops were forced off the continent, however, and miraculously evacuated at Dunkirk in May-June 1940. In June 1940 Italy, under Mussolini, entered the war and France surrendered shortly thereafter. In the latter half of 1940 a valiant Britain held firm against an onslaught of German bombers, and the restless Nazi juggernaut began to face toward Russia.

Thus in the cataclysmic events of 1939-1940, a Russia looking full in the face of a Nazi threat and raging war in Europe had little time or inclination available to pursue the bizarre, puzzling drawings and notes obtained from Moray's lab. The pace of events in Europe continued inexorably, occupying all the energy and attention of the Soviet Union. In attempting to sidestep attack by Hitler, Russia had signed a Nonaggression Pact with Germany in August 1939. Consolidating her position, Russia had engaged in a stubborn, bloody war with valiant little Finland from November 1939 to March 1940, suffering heavy casualties and leading Hitler to conclude that Russia was militarily weak. In April 1940 Germany had occupied Norway and Denmark, and in May-June 1940 German armies had disastrously routed the British and French at Dunkirk. As 1940 wore on, Hitler had moved into Romania, Bulgaria, Yugoslavia, and Greece. A beleaguered Russia signed the Soviet-Japanese Neutrality Pact of April 13, 1941 so that Japan would not pin Germany in striking the Soviet Union. By early spring of 1941, German attack on Russian forces was imminent, with daily overflights of Russian lines and probing incidents.

On June 22, German divisions attacked in a mighty blitzkrieg, encountering little resistance, and the war between Russia and Germany had begun in earnest. As war raged on the Eastern Front and

in Europe, on December 7, Japan attacked Pearl Harbor, and the United States entered the war against Japan and Germany.

The history of World War II is well-known and need not be repeated here.

However, during the war the U.S. developed the atomic bomb in a feverish and highly secret technical effort. During the Potsdam conference, the U.S. exploded its first atomic bomb in the New Mexico desert. At the conference, Stalin was informed of the bomb and its first successful test by Truman, who had replaced the deceased Roosevelt as U.S. President. An impassive Stalin showed no apparent concern, but inwardly he knew that his secret plan to conquer Europe a year or two after the war—by which time the West would have beaten its swords back into plowshares—now had to be abandoned. A short time after, the U.S. dropped two bombs on Japan by stunning surprise. Faced with total and certain annihilation, the heretofore fanatical Japanese capitulated.

As one aftermath of the U.S. development and use of the atomic bomb, Stalin—ever the total dictator—lashed his Soviet Academy of Sciences furiously. Undoubtedly he pointed out that the destiny of Communism had been frustrated by this great technical breakthrough made by the Americans (with help from the British and from political European refugees.) He informed his scientists in no uncertain terms that the next such breakthrough had better be Soviet. He planned to do exactly what the U.S. had done: Find a new area for a great technical breakthrough and superweapon, put the entire resources of the nation behind it, develop it in great secrecy, and thrust it upon the U.S. and its allies at the eleventh hour. The West would then be forced to capitulate, just as was Japan. We had already shown Stalin the successful scenario by which to win the next war.

Ironically, Stalin's "great technical breakthrough" was to come from Germany's radar scientific team, taken to the Soviet Union after the war. This team had drastically advanced the theory of radar cross section and radar absorbing material (RAM). They were on the verge of discovering phase conjugate time reversed radar waves—which would enable the great new superweapons Stalin sought.

Meanwhile, the Soviets plotted a delaying campaign until they were ready to strike the West. Furious action was required to catch up to the U.S. in atomic weaponry. Obviously it was only a matter of time until long range rockets, as evidenced by the German V1 and V2, would be mated to atomic warheads, thrusting the decisive role of artillery into

the strategic arena, far beyond the wildest imagination of then-current thinking. Also, air defenses against the American and British bombers were desperately needed. Guided rockets capable of shooting down American bombers enroute to critical Soviet areas were an absolute necessity. Atomic warheads were needed against massed bomber fleets, as had been thrown against Germany during the war.

*The Soviet state must launch a superhuman effort to rapidly achieve its desperately needed missiles and atomic weapons, for it was totally vulnerable until that had been achieved. Meanwhile, the old methods that had proven so effective when one cannot fight a stronger foe head-on— guerrilla warfare, insurgency, and terrorism—must now be massively employed on a global scale to focus the attention and physical exertion of the U.S. dragon elsewhere. Third party "wars of attrition" would threaten American interests around the globe, and U. S. forces would be siphoned off in debilitating struggles against guerrilla wars and in distant lands. These sapping wars would "bleed the dragon" and weaken it, while the Soviet Union prepared a special technical sword with which to administer the final coup de grace.*

Stalin was an absolute dictator, brooked no opposition, and killed his opposition. Knowing what was good for them, the Soviet Academicians did not dare to debate or protest against his ultimatum to search every field of knowledge, no matter what. Instead, Academy scientists vigorously turned to a massive search for the new breakthrough area. Scientific literature from the West was hauled to Russia by the shipload. Thousands of Soviet PhDs and engineers were put to work in huge analysis institutes, sifting through the literature and digesting it—and carefully noting anomalies and areas which should be followed up. Nothing even remotely approaching such a technical digestion and analysis effort has ever been attempted in the West.\*

*\*From this search it seems clear that the Soviet discovered Whittaker's 1903 and 1904 papers also prescribing the engineering method.*

Two short years after WWII, Soviet planning for Stalin's new thrust was finalized, and the cold war was launched around the world. A great dialog began among the leading Soviet military leaders to hammer out radically new strategy for utilization of new weapons of mass destruction. Feverish effort to develop and deploy the first defensive missiles was underway, as was a crash effort to develop long range ballistic missiles, large bombers and atomic weapons. At the time, German and Soviet radar scientists probably began to discover—and puzzle over and work out the theory and hardware for time reversed EM waves and phase conjugate mirrors.



The Moray drawings (and related agent reports) must have been resurrected. Nikola Tesla's notes, taken from his hotel room at his death in 1943 and later turned over to Yugoslavia, must have passed into Soviet hands also. Soviet espionage was quite successful in easing the task of developing atomic weapons. Soviet rocketry, funded and staffed massively, forged ahead, particularly in big rockets and solid propellants. The great postwar arms race was on, so far as the Russians were concerned.

Several years after WWII, then, the Soviets should have been embarked on experimentation with a Moray prototype amplifier. They should have been deeply involved in time-reversed EM wave experimentation to rediscover what Tesla actually had done in wireless transmission of energy without loss. Also, the earlier Kaluza-Klein unified electromagnetics and gravitation theory(1921-1926) could not have eluded the Soviet scientists, who have consistently led the world in nonlinear mathematics. Of necessity, the search for a new breakthrough area would have initiated intensive review of the foundations of physics and electromagnetics, in an effort to discover any "holes" that might exist. Thus the short debate at the turn of the century, that established Heaviside's limited version of Maxwell's EM theory—largely because of Western repugnance for Maxwell's use of Hamilton's difficult quaternions— would not have gone undetected. Careful review of that situation would immediately have revealed that

(1) Maxwell's theory, which was worked out in quaternions rather than vectors, had actually not been completely captured by its translation into Heaviside's vectors by none other than Heaviside himself.

[Heaviside was the cofounder of modern vector analysis and almost single-handedly produced what today is the recognized vector form of Maxwell's equations. He also nearly single-handedly transformed Maxwell's theory into its modern form.].

(2) The effects of stresses in the vacuum medium had been eliminated by Heaviside, while Maxwell certainly had pointed out additional terms required to address this issue. [A Soviet team addressing this omission, would have inevitably connected it to Whittaker and Kaluza-Klein theories, revealing electrogravitation (scalar electromagnetics).].

(3) A quaternion, which contains a scalar part in addition to a vector part, could maintain\*\* its non-zero scalar part when the vector was zeroed, whereas in vector analysis, when the vector is zeroed, it is assumed that no residue exists. [This is also directly connected with

the mistaken assumption that an abstract vector space itself can have no substructure.]

*\*\*and even vary and oscillate, its internal EM stress.*

(4) The direct connection could be made with Whittaker theory to produce scalar vacuum stress gravitation when the EM vector fields were zeroed.

(5) The West had missed this unified theory because of its total aversion to quaternions, and its elevation of the curtailed Maxwell's theory to cult status.

(6) Investigative experiments to explore bucking EM force fields which neatly zero sum would have almost immediately revealed highly anomalous behavior of materials and circuits. [Such simple investigations of zero-vector EM force field summation do not seem to appear in the Western literature at all, so far as can yet be established.]

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*\*\*\*with the single exception of the Aharonov-Bohm effect, which has finally been proved after 27 years of controversy, and Hooper's work which was obscurely published.*

Something very much like that, together with quantum mechanical ideas, would have had to be applied to explain the operation of the Moray device. Note that **every one of the suppositions above was available to any thorough Soviet search**—and the Soviet scientists certainly made the search, more massively and thoroughly than has ever been done before or since. Since the evidence is overwhelming that the Soviet scientists developed electrogravitation and scalar EM weapons, it seems logical that their search succeeded along these lines or similarly.

About 1950-1952, the Soviets developed EM machines that could influence the brain and nervous system directly. This included the Lida machine, which can induce a catatonic state into a mammal such as a man, a cat, etc. U.S. scientists, obtaining one of these devices in the 1980s, reported that it utilized a 40 MHz carrier, and produced unusual waveforms (showing the multiple frequency content). Since the U.S. scientists do not possess scalar EM detectors, they have no measurements or knowledge of possible scalar components in the Lida's output signal. According to one U.S. scientist, the device was used by North Korean interrogators in brainwashing U.S. prisoners in North Korea during the Korean War, and was highly effective.

By the mid-50s, the Soviets should have been well along in prototype building, weaponizing, and development of larger devices and starting new weapons, based on what I have called **scalar electromagnetics**—unified EM/gravity field theory a la Whittaker or simply **electrogravitation** using negative energy and time-reversed EM waves.

[In the winter of 1957-58, a monstrous nuclear accident occurred at a Soviet facility in the Ural Mountains near Kyshtym.](#) [Inexplicably, for decades U.S. intelligence analysts feverishly resisted—and even suppressed—the evidence in their possession, adamantly insisting that such an event never occurred.]. Witnesses reported that **atomic wastes in the nearby storage site exploded**. Since scalar EM research and development would have been underway in the Soviet Union for several years, we can construct a scenario that will produce that nuclear event: Suppose a large nearby radar had been modified to radiate a scalar EM wave. Suppose it is also used to produce a standing scalar EM wave, after Whittaker.

As the radar continues to radiate, such a standing scalar EM wave is "charged up" to a higher and higher "potential", just like charging a capacitor. That is, in the standing wave, its "locked-in energy density of vacuum" is being steadily increased, simply by continuing to transmit with the radar in the scalar EM mode. However, what is actually being "charged up" or produced is a gravitational potential standing wave (and this G-potential is increasing.) Further, suppose the radar and its attached standing scalar wave (G-potential) are energized, and suddenly the radar transmitter suffers an electrical failure. The "scalar potential" represented by the charged-up vacuum energy (which can be enormous) in the standing wave would immediately discharge to earth in a sharp electrogravitational pulse (EGP). When a strong EGP pulse—which is absorbed by, and reradiated from, atomic nuclei rather than orbital electrons—struck stored radioactive nuclear wastes, the radioactive nuclei would all decay immediately, just as if internally exposed to an atomic bomb. A full nuclear explosion of the stored nuclear wastes—in the dirt and dirty—would occur, creating a terrible nuclear "accident."

That is exactly what caused the Kyshtym accident in 1957-58. [Failure of a large scalar EM transmitter produced a giant EGP "arc discharge" into the earth, striking the atomic wastes stored nearby.](#) The resulting explosion and radioactive fallout contaminated a very large area, which is still contaminated to this day. Hundreds—perhaps thousands—of casualties resulted.

So we can be confident that, in 1958, the Soviets were already experimenting with large scalar EM Whittaker beam weapons. We can also be confident that, after the Kyshtym disaster, the Soviets immediately realized the cause of the accident, and developed safety circuits to hold the standing wave from collapse in the event of electrical failure of the transmitter. Means to slowly "drain off" the accumulated EG potential safely into the earth—much like slowly discharging a capacitor—would also have been developed and incorporated into the beam transmitter.

[Anomalous microwave radiation of the U.S. Embassy in Moscow began during the late 1950s](#), and has repeatedly occurred to this day.

Twin beams have been noted in the radiation, suggesting interferometry. Scalar EM components on the carriers would not be detected by normal microwave instruments, although the weak carrier signals would. Further, the strength of the scalar EM wave's infolded components can be essentially independent of the strength of the carrier. Apparently a wide variety of physical effects were experienced by personnel in the Embassy, including several U.S. Ambassadors.

[Note that extensive tests of the electromagnetic transmission of cellular disease patterns between cell cultures have been reported by Soviet researchers, led by Kaznacheyev. [Kaznacheyev reported that the effects were due to near-UV photons emitted by the diseased cells and irradiating the test cells](#). Such effects have been replicated at the University of Marburg, West Germany, using infrared emissions from diseased cells to irradiate test samples. At the University of Sydney, Australian researchers have accomplished the effect at a distance of over 100 feet, using what can only be called scalar EM radiation.].\*

[\\*Dr. Fritz Popp has discovered the virtual-state \(i.e., scalar EM!\) master control communication system for the cells in the human body.](#)

The "Moscow radiation" has represented an intelligence probe for all these years: radiating a high-level U.S. target—the U.S. Ambassador to the Soviet Union—and inducing physical effects assured the involvement of high U.S. governmental agencies and official, including the CIA, DIA, NSA, the National Security Council, and the President. Eventually, the U.S. scientific community would also be asked to evaluate the signals.\*\*

*\*\*For a full explanation, see T.E. Bearden, [Gravitobiology: A New Biophysics](#). Aug. 1989.*

The response of the U.S. Government and the counteractions taken (or

not taken) at the U.S. Embassy in Moscow reveal whether or not the U. S. is aware of scalar electromagnetics and scalar interferometry, with **very high confidence**. Since apparently no U.S. scalar EM countermeasures have been taken at the Embassy, the Soviets have long been assured that the U.S. knows nothing of scalar EM, has not developed scalar EM weapons secretly, and possesses no defenses against the surprise use of scalar EM weapons against U.S. forces and installations.

In **January 1960**, Khrushchev announced the development of a new, fantastic weapon—one so powerful it could wipe out all life on earth if unrestrainedly used. **The New York Times** printed part of the story. Khrushchev, of course, was referring to the newly emerging scalar EM weapons. So in early 1960 the Soviets were in at least what we call the engineering development stage for large scalar EM beam weapons, which would be deployed when finished.

On **May 1, 1960** Soviet defensive radars—rigged as prototype scalar EM beam weapons—probably downed Francis Gary Powers's high-flying U-2 reconnaissance plane over the Soviet Union, precipitating a major diplomatic incident. At the time, no Soviet surface to-air missile could reach the high-flying U-2, but of course it was extensively tracked on Soviet defense radars. Powers reported that a flash occurred behind his plane **and persisted**—almost certainly the signature of time reversed wave real-time holography. Eisenhower first denied, then was forced to admit, the photo-reconnaissance nature of Powers' mission when Khrushchev revealed that the Soviets had captured Powers alive. Khrushchev then cancelled a major summit meeting with President Eisenhower. Powers was imprisoned, and released in February 1962 in exchange for Rudolf Abel, a convicted Soviet spy.

In the **fall of 1962**, with his new superweapons nearing deployment, the ebullient Khrushchev could no longer contain his eagerness. He "jumped the gun" and attempted to change the international balance of power at a single stroke. The Soviets started inserting MRBMs—weapons which would blanket the U.S. like a glove—into Cuba at a feverish pace. From information clandestinely fed by Soviet Col. Oleg Penkovsky, John F. Kennedy was aware that Khrushchev's bombers and ICBMs were in woeful shape.\*\*\*

*\*\*\*Penkovsky knew nothing of the Soviet Weapons program in energetics, using time-reversed EM radar wave weapons.*

Not suspecting the Soviet superweapons, he knew that Khrushchev was bluffing—and proceeded to call the Soviet bluff, precipitating the Cuban Missile Crisis. Khrushchev was caught with his pants down.

His superweapons were not yet ready, and the U.S. could have easily destroyed the Soviet Union. Reluctantly he backed down and removed the missiles, after first blustering enough to get an agreement from Kennedy not to attack Cuba.

In the Communist world, this was a serious loss of face by Khrushchev. He knew his days were numbered unless he did something dramatic to recoup stature.

Accordingly, as soon as his new superweapons were deployed and ready, Khrushchev did that "something dramatic." On **April 10, 1963** he destroyed the [U.S.S. Thresher](#) with one of his new weapons. Scalar EM (electrogravitational) beams, focused through the ocean to interfere on the Thresher under the surface, recreated spurious EM energy in the sub's electrical control circuits, jamming them so that the sub lost control, sank to crush depth, and imploded. Spurious electromagnetic "splatter" surrounding the immediate vicinity of the targeted area left a signature of intense EM interference with multiple systems and multiple frequencies of the **U.S.S. Skylark**, surface companion of the Thresher. This anomalous EM interference was so virulent that it required over 1-1/2 hours for the **Skylark** to transmit an emergency message back to headquarters that the sub had been lost. \*\*\*\* The death of the **Thresher** was Khrushchev's first blow.

\*\*\*\* Some electronic systems mysteriously malfunctioned, then later completely recovered spontaneously. This again is clearly a scalar EM weapon signature.

The next day, **April 11, 1963**, Khrushchev struck his second blow. Two deployed Soviet scalar EM weapons fired massive scalar EM pulses through the ocean. The two massive pulses met and interfered deep under the surface, 100 miles north of Puerto Rico. The resulting giant underwater EM explosion hurled a mushroom of water half a mile up into the air, and the anomalous explosion was observed (and later reported to the FBI and the Coast Guard) by the pilot and crew of a US. Jetliner passing nearby, enroute from Puerto Rico to Florida.

Thus we know the year—and indeed probably the very month—that Khrushchev's new "fantastic weapon" was deployed: April 1963.

In the 1960s, Curtis detected a previously unknown, anomalous, weak electromagnetic radiation pattern over the ocean. This is the type of pattern consistent with the introduction of scalar signals with a small' impure normal EM component or residue. Such cruder implementation would have been expected early-on in the Soviet program.

On **June 17, 1966** from the air near Teheran, Iran, [several airline pilots sighted a brilliant sphere of light](#), "sitting on the horizon," so to speak, deep within the Soviet Union. The intensely glowing sphere expanded to enormous size, dimming as it expanded, always remaining "sitting on the horizon." The pilots observed the phenomenon for 4 to 5 minutes. A CIA report on the incident was released under the Freedom of Information Act.

In **1967-68**, anomalous holes appeared in clouds over the U.S., possibly associated with the beginning of early [Soviet weather engineering over the U.S.](#) That winter was particularly severe.

In the **late 1960's**, [Lisitsyn reported that the Soviets had broken the "genetic code" of the human brain](#). He stated the code had 44 digits or less, and the brain employed 22 frequency bands across nearly the whole EM spectrum. However, only 11 of the frequency bands were independent. This work implies that, if 11 or more correct frequency channels\* can be "phase-locked" into the human brain, then it should be possible to drastically influence the thoughts, vision, physical functioning, emotions, and conscious state of the individual, even from a great distance.

\*To translate this to VHF or radar/radio frequencies, see Bearden, Gravitobiology, 1989.

It may be highly significant that

(1) up to 16 of the giant [Soviet woodpecker carriers](#) have been observed by Beck and others to carry a common, phase-locked 10-Hz modulation, and

(2) such a 10-Hz signal has been demonstrated by Beck, Rauscher, Bise, and others to be able to physically entrain or "phase-lock" the human brain, if stronger than the Schumann resonance of the Earth's magnetic field.

A human brain entrained by a common, phase-locked 10-Hz modulation on 16 carrier frequencies would effectively have 16 frequency channels phase-locked into it. The potential for using the [Woodpecker transmitters](#) to phase-lock an appreciable percentage of human brains in a targeted area, and then induce effects in the populace similar to—and even more drastic than—the effects induced in U.S. Embassy personnel in Moscow, should be strongly pointed out. Coupled with the Kaznacheyev work on EM transmission of cellular



death and disease, using the [Woodpecker signals](#) to induce death and disease in the targeted populace may also be a distinct possibility. Modification of DNA/RNA—and viruses themselves—is also a possibility.

Many other Soviet scalar EM testing incidents are documented in Bearden, [Fer-de-Lance](#). 1986, and in [AIDS: Biological Warfare](#). 1988. Repeated presentations on the Soviet scalar EM weapons and their testing have been given at national symposia since 1978. The exact mechanisms utilized by these superweapons have also been given. A complete and consistent series of many anomalous events exists over the years, showing the continuing development, testing, and deployment of massive scalar EM weapons by the Soviet Union.

Actual use of the weapons to [create a giant interference grid over the U.S. and severely affect world weather](#) is documented in a videotape, Bearden, [Soviet Weather Engineering Over North America](#), 1985. This videotape also includes several other major accidents, and also U. S. weather satellite photographs of anomalous exhausts from the Soviet Union's Bennett Island.\*\* The exhausts are often in jets 150 miles long and nearly horizontal (about a degree and a half in elevation). They have been photographed coming from Bennett Island and the sea nearby, since 1974.

\*\* Which actually belongs to the U.S.

Note that Bennett Island need not be the site of the actual scalar EM weapon itself. Energy extracted by a scalar EM howitzer (endothermic mode) from a distant region could be caught temporarily, then "relay fired" to Bennett Island by the same howitzer, switched into its exothermic mode. Thus the howitzer could act as an energy transmission relay between a distant endothermic target site and a separate distant exothermic exhaust site such as Bennett Island. Such exhausts have also been photographed coming from Novaya Zemlya.

On [January 23, 1974 a mysterious explosion over North Wales](#) rocked a 60-miles radius area. Associated anomalous light phenomena were also seen. Hundreds of anomalous booms, aerial rumbles, and aerial explosions, many accompanied by flashes or anomalous shaking of ground structures, buildings, windows, etc., have occurred over the U.S. and other Western nations in the 60s, 70s, and 80s. Many were simply Soviet tests.

In **June 1975**, Brezhnev called for a ban on weapons of mass destruction more terrifying than nuclear arms. He stated the need for

an "insurmountable barrier" to the development of such weapons. In July he repeated his strange proposal to a group of visiting U.S. Senators. Ponomarev, a Soviet national party secretary, again raised the same issue to a delegation of visiting U.S. congressmen in August. At the United Nations' thirtieth Session of the General Assembly on Sept. 23, 1975, Foreign Minister Andrei A. Gromyko strongly raised the same issue, warning that science can produce "ominous" new weapons of mass destruction. He urged that all countries, led first by the major powers, should sign an agreement to ban the development of these unspecified new weapons. He even offered a draft, entitled "Prohibition of the Development and Manufacture of New Types of Weapons of Mass Annihilation and of New Systems of Such Weapons." The first article provided that the types of these new weapons would be "specified through negotiations on the subject." By its fixation on nuclear weapons and its ignorance of scalar EM, the West may have lost its only opportunity to prevent the spread of scalar EM weapons "more frightful than the mind of man has ever imagined," to use Brezhnev's characterization.

With obvious lack of knowledge of scalar EM weaponry by the West and failure to achieve a total ban, the Soviet hawks again were able to prevail over Brezhnev and the more conservative Party leaders. The Soviets decided upon a massive buildup of arms, with the intention of being prepared to dominate the world in a decade.

In **July 1976**, communications around the Earth were interrupted by the sudden emergence of powerful Soviet transmissions in the communications band, from 3-30MHz. The chirped signal produces a characteristic sound in a receiver similar to a woodpecker's beak hitting a wooden block. The transmitters were immediately dubbed "woodpeckers", and the signals "woodpecker signals." The Western intelligence community dubbed these giant transmitting systems "over-the-horizon radars." These powerful systems were brought on full deployment and activated after the Soviets decided to go ahead with a decade-long buildup to prepare to dominate the earth. That decision was reached after Brezhnev's 1975 failure to obtain world agreement banning development of scalar EM weapons. Activation of the giant Soviet [Woodpecker weapon systems](#) meant that the Soviet Union now would deploy massive scalar weapons on an unparalleled scale.

On **July 28, 1976**, a great earthquake destroyed Tangshan, China, killing some 600,000 persons. Just before the first tremor in the early morning, the sky lit up like daylight, with multi-hued lights seen up to 200 miles away. Electrical signals were also associated with the quake. Note that, in 1912, Nikola Tesla stated in an interview that it would be possible to split the planet, by combining vibrations with the correct

resonance of the earth itself. Tesla stated, "Within a few weeks, I could set the earth's crust into such a state of vibrations that it would rise and fall hundreds of feet, throwing rivers out of their beds, wrecking buildings, and practically destroying civilization. The principle cannot fail..." Tesla once set off a growing local vibration and shaking of the entire neighborhood around his laboratory, using a 10-lb. device. Tesla later improved on his concepts, calling this area "telegeodynamics". In 1935 he said: "The rhythmical vibrations pass through the earth with almost no loss of energy... It becomes possible to convey mechanical effects to the greatest terrestrial distances and produce all kinds of unique effects... The invention could be used with destructive effect in war..."

Later in 1976 Soviet scientists increased the power of the giant transmitters to perhaps 40 megawatts each. The scalar EM power contained in the normal EM carriers is unknown. Transmitting pulses at about 7 Hz, it appears that enormous standing waves were inadvertently set up in-phase in the atmospheric duct around the earth. That is, the powerful carriers were circling the earth about 7 times per second, coming back around in phase with the previous loop. The scalar content also was in phase. The in-phase scalar component apparently produced the phenomenon of "kindling"; i.e., of "charging up" the loop with Whittaker (1903) gravity potential. This potential was perfectly in phase with the cavity resonance of the earth-ionosphere, and so the liquid-filled crustal features of the earth and the ionosphere coupled to it. In short, the potential became self sustaining, and increasing as long as the transmitters kept pouring in carrier power. The result was giant standing waves of totally unsuspected magnitude. The frightened Russians hurriedly turned off the transmitters, but were then faced with an undamped, sustained oscillation of the giant potential. Thoroughly frightened, the Soviets radiated intense bursts of power at the waves, trying to break up their coherence. According to one source, these waves lasted several months under that bombardment before gradually dissipating. Note that experiments by Dr. Robert Helliwell at the U.S. Antarctic research camp known as Siple Station has shown fairly conclusively that radio waves can be magnified up to 1,000 times or more in the ionosphere, according to reports in the open literature.

On **September 10, 1976**, the crew and passengers of British European Airway Flight 831, over Lithuania enroute from Moscow to London, [observed an intensely glowing, stationary ball of light above the clouds underneath the plane.](#) When alerted by the airline pilot, Soviet authorities on the ground curtly informed him to pay no attention and, effectively, to exit the area. This Soviet reaction indicates that the

incident may have been a Soviet test of an unknown type of device—in short, a scalar EM interferometer. If so, the interferometer intersection zone was deliberately placed near the aircraft to stimulate the crew and passengers. By the later reaction of the British government to the incident, the Soviets could ascertain whether or not Britain was cognizant of scalar electromagnetics.

On **May 18, 1977**, the Soviets signed an agreement with the U.S. and 29 other countries, promising not to attack each other by causing man-made storms, earthquakes, or tidal waves. The Soviets had already tested weather control against the U.S. in 1967 and had been steadily using it against America for almost a year.

On **April 2, 1978**, an anomalous straight, not jagged, beam of "lightning" came down from the sky at a 45 degree angle to the ground and struck Bell Island, Newfoundland, causing a loud explosion and damage to some houses, etc. Two cup-shaped holes about two feet deep and three feet wide marked the major impact. Wires leading to a shed and coop nearby were vaporized. Both structures suffered considerable damage, but no burning occurred except for a slightly scorched spruce tree. The anomalous bolt did not discharge into prominent metal contact points, such as a metal chimney running down to an iron stove. Instead, all the wiring on the property was blown out. A number of TV sets in Lance Cove, the surrounding community, also **exploded** at the time of the blast. Weather men confirmed that atmospheric conditions at the time were not conducive to lightning. The blast was heard 45 kilometers away in Cape Broyle. Apparently U.S. Vela satellites picked up the event. The incident was investigated promptly by two representatives from a U.S. weapons laboratory at Los Alamos, according to the news media.

On **Nov. 21, 1977**, cloud indications of a huge standing wave was observed off the Pacific coast of America, reaching from Alaska to Chile. Satellite photos show cloud banks over this stretch of the ocean, lying offshore, and reaching for the whole of the distance. These clouds grazed the land slightly at California. There a straight black line, as though drawn by a ruler, appeared in the cloud mass. It was an opening in the clouds, one mile wide and 200 miles long. There was no known explanation. This was a phenomenon without parallel in past records.

A series of anomalous high altitude booms occurred off the East coast of the U.S. around the end of the year in 1977-78, though some activity had started as early as July 1977. Flashes associated with some of the booms were observed. On Dec. 27, President Carter called for a full report. No reason could be found. These explosions represented

adjustment of the interference grid that had been established over the U.S. by the [crossed Woodpecker beams](#), and artillery-type high burst registration of scalar EM howitzers. Numerous other adjustments of the grid and registration of howitzers have occurred over the U.S.

The peculiar "nuclear flashes" seen by the Vela satellites in September 1979 and December 1980 could have been due to a testing of a scalar EM howitzer in the pulsed exothermic mode. In the mode, scalar EM pulses meet at a distance, where their interference produces a sharp electromagnetic explosion (hence the "flash", very similar to the initial EMP flash of a nuclear explosion. Even in the vacuum of space, such an explosive eruption of energy from within the local spacetime vacuum itself may be expected to lift matter from the Dirac sea, producing a plasma. Prompt absorption and re-radiation of energy from this sudden plasma may be expected to present nearly the same "double peak" profile as does a nuclear explosion. This was the profile presented by the flashes. Note that the second flash detected was apparently of an "explosion" primarily in the infrared, almost certainly ruling out a conventional nuclear event. It does not rule out, however, pulsed distant holography using pumped EM giant time-reversed wave transmitters.

From Afghanistan in **September 1979**, [British war cameraman Nick Downie observed gigantic, expanding spheres of light deep within the Soviet Union](#), toward the direction of Saryshagan missile test range. [Saryshagan apparently contains at least one directed energy or particle beam installation](#) which could possibly function as a scalar interferometer/scalar EM howitzer. Downie observed multiple incidents in the direction of Saryshagan during the actual month (September 1979) that the first anomalous flash was detected by U.S. Vela satellites. On the other hand, there also exists tenuous evidence that these Vela events may have been associated with weaponry of another nation, not hostile to the U.S. There is evidence that this second nation also possesses scalar EM weapons, as do two additional nations besides the Soviet Union.

In latter 1980, a most anomalous drought was induced in the United States. On Feb. 2, 1981, the **Washington Post** commented: "For the past four months, a single weather pattern has gripped virtually the entire United States, causing a coast-to-coast drought unique in the annals of weather recording... The weather system causing the drought is one of the most unusual national patterns ever recorded." It was also one of the most artificial ones ever recorded!

On **January 20-21, 1982** a swarm of more than 1,400 earth tremors

occurred in that two-day period in north central Arkansas. Beginning on Jan. 12, activity had started in the swarm area, and three quakes registering above 4.0 on the Richter scalar were recorded. The strongest was on Jan 20, and measured 4.5. There had been no previous recorded earth tremors in the area. Long dormant faults near the Ouachita Mountains were suspected as being responsible. Note that strong scalar waves, passing through the Ouachita fault zones, could have stimulated such activity, since a fault is a natural scalar interferometer and thus a scalar transmitter/receiver. Scalar reception would result in increased electricity in the rocks in the fault zone, in turn increasing the mechanical pressure in the rocks. Since the Soviets were heavily engaged in scalar EM weather engineering operations over North America in 1982, these tremors may have been side effects of those operations.

**On June 18, 1982**, pilots and crews of Japan Air Lines Flights 403 and 421 reported sighting a giant, expanding globe of light in the North Pacific, 700 kilometers east of Kushiro. This was another test of a scalar EM howitzer/interferometer producing a "giant globular shell" of energy at a great distance. When small, the intense shell produces a very high EGP and also a very high EMP inside the matter of any object penetrating the shell. The EMP will dud any and all electronic equipment; explode high explosives, fuels, and combustibles; and render any modern weapon harmless. The high EGP will detonate a nuclear warhead immediately in a "full-up" nuclear detonation. It will also instantly kill any living creature, including every cell, bacterium, virus, and organism in its body. It will also detonate any ordinary, non-radioactive material with a low-order nuclear detonation of all its nuclei. As the globular shell is made very large, "energy density" in its shell is reduced. However, any nuclear material or device will still suffer a low-order nuclear detonation from the EGP, and any biological system will still be instantly killed. The EMP will still dud any electromagnetic equipment presently made. As can be seen, the globe can be used to defend an entire sector of the sky against any kind of incoming threat—with 100% effectiveness. A hemispherical shield can be placed over one's own field army for terminal stage defense, and/or over the opposing force for initial phase defense, against most everything!

**On July 20, 1982**, Soviet official Lysenko of the Soviet Embassy in Washington, D.C. stated publicly that, should nuclear disarmament fail, the Soviets would quickly introduce new weapons more powerful than nuclear arms, and these weapons would not be verifiable. U.S. Army Col. John Alexander, together with this author, was in the audience and heard Lysenko's statement.

In latter **December, 1982**, odd, anomalous atmospheric booms occurred over Ohio. These represented tests and adjustments of the scalar EM interference grid over the U.S. and the probable registration of scalar EM howitzers used in conjunction with the grid. (See FDL for complete details of this grid weapon.).

Anomalous "laser blinding" of U.S. satellites over the Soviet Union has occurred on several occasions. On one occasion, a satellite was blinded for up to four hours. While such non-damaging blinding would be difficult for a ground-based laser to accomplish, it would be simple for a scalar EM interferometer—or a ground-based scalar EM laser—to accomplish, since the amount of energy deposited upon and within the satellite could be precisely controlled and even directly monitored. A possibly related anomalous temporary disabling of two or three power supplies has been demonstrated upon the British satellite Ariel 6 when passing over British Columbia or the Caspian Sea, if the sun is shining.

In **mid-January, 1983**, so-called "sonic booms" shook the air over Pennsylvania.

In **latter February, 1983** anomalous booms occurred over New York, and anomalous tremors shook the Mississippi Gulf Coast. Anomalous booms also shook Ohio.

On **April 9, 1984** a gigantic mushroom cloud—glowing, like a "halo"—rapidly emerged from above the ocean off the coast of Japan. The cloud grew to 60,000 feet or so within two minutes, and reached an enormous diameter estimated at 200 miles. Several Boeing 747 jet airliners were in the general vicinity; at least one of them was piloted by a former B-52 pilot who took evasive action, since the phenomenon resembled a giant nuclear explosion. However, there was no blinding flash of light, and no massive shock wave overlook the aircraft. Walker et al investigated the seismic and underwater acoustic instrumentation data surrounding the period of the incident, and essentially ruled out all **known natural** phenomena. They concluded that the incident was either an as yet unknown natural phenomenon or man-made explosion. In fact, it was very probably a test of a giant scalar EM howitzer, used in the endothermic (heat energy withdrawing) mode. Sudden energy withdrawal in a region above the ocean resulted in a sudden low pressure, sucking up a giant cloud of moisture. Inrushing air pushed the cloud upward into a giant mushroom, much like a giant expanding thundercloud anvil wells up when it forms, only faster. Walker and colleagues have again examined the reported position of the cloud, and placed it much nearer to the Soviet Union—between the Kurils and Sakhalin. Four stages



were observed: (1) a towering, cumulus-like cloud rose out of the stratiform layer, (2) the cloud tower faded and was replaced with a small semicircular halo segment, (3) the halo expanded to a full circle, and (4) the halo expanded further and dissipated. The diameter of the halo at maximum size is now estimated to have been at least 380 miles, and the altitude of its center (at maximum size) is estimated to have been greater than 200 miles.

Note that the upper edge of the shell would have been at an altitude greater than 380 miles. This sort of "Tesla shield" is an antimissile and antiaircraft defense shield. Any object penetrating the shell receives both an electrogravitational pulse (EGP) and electromagnetic pulse (EMP) **arising inside it, from within its local spacetime**. The EMP will dud all electronics and explode all high explosive (HE) materials. EMI shielding is ineffectual, since the EM energy pulse arises **everywhere within** the vehicle, warhead, and circuitry from spacetime itself. The EGP will immediately fission radioactive material. If a strong EGP is experienced, a nuclear warhead or warheads will explode "full order", instantly. In fact, even the nuclei of ordinary, nonradioactive material struck by a strong EGP will fission in a low order nuclear explosion. In the "small shell" or "small globe" variant, a sufficiently strong EGP will be experienced by a penetrating object to cause full order detonation of nuclear warheads. In the "large shell" or "large globe" variant, a weaker EGP will be experienced, causing low order detonation or merely disruption of nuclear warheads.\* As can be seen this defense weapon is effective against all types of warheads (nuclear, HE, etc.) and all types of penetrating vehicles (bombers, ballistic missiles, cruise missiles, RPVs, artillery shells, etc.). The 1968 statement in **Voyennaya Strategiya (Military Strategy)** by V.D. Sokolovskiy that 100 percent defense against missiles and aircraft is possible, and that this capability had been achieved by the Soviet Union, but not by the West, is true.

*\* It will also explode fuel, propellants, and HE explosives, dud all electronics, kill all personnel, etc. at the same time.*

Thus the incident apparently represents three tests in one: (1) the initial "cold explosion," or test of the howitzer in the endothermic mode, and (2) the immediate switching of the howitzer to the exothermic mode and creation of a small hemispherical shell of energy (Tesla shield). (3) The shield was then expanded into a globular shell, and expanded to giant size. The globular part of the exothermic test was very similar to the Soviet test observed from Teheran on June 17, 1966. The glowing hemispherical shell was similar to several previous Soviet tests observe over the ocean and reported in the open literature. For example, on Mar. 24, 1977, the H.M.V. Kinpurnie Castle observed a

large, moderately luminous hemisphere of light formed over the ocean, and the formation of two luminous patches or globes, one inside the hemisphere and one outside. The phenomena disappeared after 10 minutes. The gigantic incident off the coast of Japan on April 9, 1984 was indeed the testing of a giant Soviet scalar EM weapon.

On the night of **July 26, 1984**, the pilot and crew of a Boeing 747 (American carrier) flying from Tokyo to Fairbanks, near the Kuril Islands, noticed a slowly expanding hemisphere of white light off to their left above the horizon. The shell of light continued to expand over a 10 minute period until ahead of them and to the right. The crew braced for a shock wave which never arrived. Their weather radar saw nothing out of the ordinary. The shell of light had sharp edges and was semitransparent so that stars became visible through it. This was another Soviet test of the Tesla shield. Numerous sightings of this phenomenon have been made by airline pilots flying in and out of Japan.

In early **December 1984**, significant adjustments of the scalar EM interference grid occurred. In the vicinity of Los Angeles and San Diego, anomalous aerial phenomena such as explosions, rumblings, airquakes, and buildings and windows shaking without seismic disturbances occurred. A sharp and unexpected weather front appeared, racking the area with high winds on the night of Dec. 12, producing wide-spread damage and power outages. The newly-formed front, steered by the dynamic [Soviet woodpecker grid](#), moved on to produce significant snowstorms in other areas; even Tucson received a snow "dump" of 20 inches. Prior to the Dec. 12 anomalous weather front, this author accurately predicted an impending sudden drastic change in the weather in a brief interview over Radio station KABC, Los Angeles after the Dec. 8-9 anomalous aerial and ground structure disturbances. Complete explanation of Soviet weather engineering is given in Bearden, "Soviet Weather Engineering Over North America," 1985, 1-hr. videotape.

In **January 1985**, an incident of U.S. Navy-dispersed chaff drifting toward San Diego, California from off-coast was associated with significant failures of electrical systems and components in the city. Power was interrupted to as many as 60,000 homes. A specialized structure such as a piece of sophisticated chaff will reflect scalar waves of frequencies within its cut bandwidth. If scalar frequencies within the chaff bandwidth were present on the [Woodpecker carrier grid](#) above and surrounding San Diego, a myriad of reflecting bits of chaff in the moving chaff cloud would produce myriads of random, invisible "fireflies" of electromagnetic energy kindling at a distance,

from randomized scalar interferometry, in a zone surrounding the cloud. As these "firefly" pulses of EM energy occurred inside components of the electrical system, interference would occur, leading to anomalous electrical failures. That is apparently exactly what happened.

In **February, 1985** a China Airlines Boeing 747 aircraft enroute to Los Angeles suffered anomalous engine flameout. The jetliner fell 32,000 feet, and the pilot finally managed to restart the engines and make an emergency landing in San Francisco. In the incident, different instruments apparently disagreed with **each other, and** disagreed with the observations of the pilot and crew. This is a direct indication of the test of one type of scalar EM weapon detailed in **Fer-de-Lance**. Only a "mild" test was conducted, as the Soviets apparently did not yet wish to actually destroy the aircraft.\*

*\*Scalar interferometry (endothermic mode) causes electrostatic cooling in the internal combustion gases of the jet turbines. This reduces the pressure, and the thrust. When cooled sufficiently, the engines flame out and fail. They cannot be restarted until the scalar charge has time to drain away.*

We mention in passing that, **in 1972**, at a secret meeting of the leaders of the communist parties of Europe, Brezhnev named the year **1985** as the target year that the Soviets would be free to do as they will, anywhere on the globe. He stated that by that year the Soviet Union would control the oceans, the atmosphere, and 90% of the land area. We accent that he said **control**, not invade, conquer or occupy. [In 1960, Khrushchev also laid out a time schedule that focused on readiness, with technical superiority, in 1985.]

In latter **April, 1985**, Frank Golden discovered the rather sudden Soviet activation of 54 powerful scalar EM frequencies (27 pairs, each pair 12 kilohertz apart) transmitted into the earth and utilized to stimulate the earth into forced electrogravitational resonance on all 54 frequencies. These represented 27 giant "power taps" into the earth, each tap extracting enormous energy from the molten core of the earth itself, and turning it into ordinary electrical power. Each giant tap is capable of powering 4 to 6 of the largest scalar EM howitzers possessed by the Soviet Union.

In and around **May Day 1985**, the Soviets conducted a massive, "full up" strategy exercise of the scalar EM weapon systems and communications strategic exercise, monitored by Frank Golden (and for several hours, by the author.). For the May Day 1985 celebration, the 40th anniversary of the end of WWII, the Soviets conducted a full-up demonstration of the scalar EM superweapons armada for

Gorbachev, the recently selected leader. Apparently over 100 giant scalar EM weapons were activated. Twenty-seven gigantic "power taps" were established by resonating the earth electrogravitationally on 54 frequencies (27 pairs where the two are separated from each other by 12 kHz.). By alternating the potentials and loads of each of the two paired transmitters, electrical energy—in enormous amounts—can be extracted from the earth itself, fed by the "giant cathode" that is the earth's molten core. Scalar EM command and control systems, including high data rate communications with underwater submarines, were also activated on a massive scale. The exercise went on for several days, as power taps were switched in and out, and command and control systems went up and down. **This exercise represented the achievement of Brezhnev's 1972 statement that by 1985 the Soviets would be prepared to do as they wish, anywhere in the world.**

**August 28, 1985.** A Titan 34-D missile launched from Vandenberg Air Force Base blew up after launch. The loss has officially been attributed to failure of a high-powered fuel pump, causing a massive oxidizer leak and a smaller fuel leak. While the Soviets may have used a small EM missile to disable the pump, no evidence is available at this time to support that hypothesis. Note, however, that the loss date is well after the complete exercise of all the Soviet strategic weapons in late April-early May. It is also within the time of the "anomalous booms" accompanying full-up testing of the Soviet prelaunch ABM/antibomber system against shuttle launches from Cape Canaveral. The Soviets may very well have decided to test the first actual "quickest reaction time possible" destruction of a real, launched US. missile in August, 1985, followed by the decision to test the first actual "quickest reaction time possible" destruction of a real aircraft (simulated bomber) in December, 1985.

**Nov. 26, 1985.** Launch of the shuttle Atlantis occurred in the evening at Cape Canaveral. A mysterious light was hanging in the sky; it was the marker beacon for registration of a Soviet prelaunch phase ABM/antibomber system. Just prior to launch, an EM missile strike occurred in the vicinity, as an offset test of an associated scalar interferometer in the exothermic mode. A photograph of the anomalous incident is highly suggestive of just such an EM missile. Twelve minutes after launch when the shuttle was safely down range and out of the way, a huge atmospheric, rumbling explosion occurred over the area, and was heard for hundreds of miles up and down the coast. This represented the test of the "multiple missile launch" kill mode of the weapon system. The marker beacon, seen by hundreds of persons, was photographed as it was slewed away by the distant Soviet operator. Many booms and rumbles have occurred over Florida for several years, as the Soviets adjusted and tested the various modes of the

scalar EM grid weapon system. The shuttle launch on Nov. 26, 1985 was the third shuttle launch in which the giant explosion occurred over the area some minutes after launch. The Soviets were using the shuttle launches as a convenient simulation of a "missile target launch", against which to test their prelaunch ABM/antibomber system.

On **Dec. 12, 1985** the same Soviet weapon tested against the previous NASA shuttle launches and against various aircraft deliberately destroy an Arrow DC-8 taking off from Gander Air Force Base, Newfoundland. At lift-off, the aircraft—carrying over 258 U.S. marines and aircrew—lost power and sank into the ground tail-low, killing everyone on board.\* It was a tragedy of enormous proportions, and especially to the families and friends of the brave servicemen and crewmembers who lost their lives. Three Canadian witnesses to the crash were interviewed over the Canadian Broadcast network television news on April 8, 1986 at 10:00 p.m. No flame or smoke issued from the plane before its descent and crash. However, the witnesses reported that the aircraft was mysteriously glowing with a yellow or orange halo. That is a signature of the use of a scalar EM howitzer in the "continuous EM emergence" mode, similar to the manner in which several F-111's were downed in Vietnam. DC-8's electrical systems were interfered with by EM energy and EM jamming noise created throughout each increment of spacetime occupied by the aircraft. A powerful charge was rapidly built up on the aircraft structures and skin. The "yellow glow" seen by the witnesses was a corona due to the skin of the aircraft acquiring a high electrical charge. The loss of the engines was probably due to the distant Soviet operator applying a localized endothermic (energy extraction) beam to the engines. In fact, one eyewitness actually saw the crossed, glowing beams form in the clouds and a ball or beam of light then go from that glow and strike the aircraft. Instant fire to the plastics inside the aircraft occurred, emitting deadly gases. Half the occupants died of cyanide inhalation before the aircraft struck the ground and exploded. The stricken airliner passed directly over one observer who heard its engines roaring in painful labor, rather than with the full-throated roar of normal power. The distant Russian operator/gunner apparently tracked the aircraft down the runway, using two modes against it: (1 ) energy interference, and (2) energy extraction.

*\* An anomalous hole - characteristic of an electrogravitational (scalar EM) strike - was in a section of the fuselage ahead of the engines.*

On **Jan. 1, 1986**, a startled Frank Golden detected —and physically verified with a special technique— that a metal softening scalar EM signal had been added onto the [Soviet Woodpecker signals](#). Thus, at that time the Soviet Union was preparing to exercise a metal softening

test at some future time, in some location over the U.S.\*\*

*\*\* Note this signal could also have been present for the Dec. 12 destruction of the Arrow DC-8 at Gander AFB, Newfoundland.*

On **Jan. 28, 1986** the Challenger disaster occurred. The Challenger was positively killed by the Soviet Union, using the scalar EM weapons through the [Woodpecker grid](#). A host of indicators occurred.

1. The anomalous cold weather in Florida was definitely engineered by the USSR,
2. Specialized cloud patterns associated with Soviet grid engineering and weather engineering were observed and photographed in Los Angeles, California and Huntsville, Alabama, beginning several days before the incident, and particularly on the evening before the launch,
3. The normal "pivot point" for turning the jetstream northeastward was moved south from Huntsville, Alabama to Birmingham, Alabama by the Soviets; this was to force the jetstream much further south, and consequently move unusually cold air into the Florida panhandle, exposing the shuttle to undue cold stress,
4. About 4 hours before launch; all Soviet ships off shore suddenly left the area at speed; this was the first shuttle launch not "shadowed" by Soviet ships,
5. On the morning of the launch, higher frequencies were added to the interference grid to enable much-enhanced localization. The brains of small birds are very sensitive to these higher frequencies, due to their small diameter (wavelength) as a scalar EM receiver. If they remained in the area of localization, the birds would be in intense pain or killed. On the morning of the launch, national TV network news, announcers, noted that **no birds at all were flying** in the area, something which had never happened before.
6. At the time of the shuttle's destruction, a giant radial cloud pattern was actually in the general vicinity;
7. Three previous shuttle launches—the last on Nov. 26, 1985—had been used as direct test targets for tests of the Soviet launch phase ABM/antibomber defense system so the weapon was "zeroed in" on the launch site,

8. The [anomalous destruction of the Arrow DC-8](#) on Dec. 12, 1985 had already indicated a Soviet decision to elevate the testing to the actual destruction of targeted vehicles,
9. At the time of the launch, anomalous electromagnetic phenomena occurred in nearby restaurants,
10. A metal-softening signal was on the grid, as previously detected by Golden. This signal would be detected by the launch flame, and after ignition would result in a steady weakening of the metal in and around the booster flame. Note that the metal was already cold-stressed beyond what it had been tested to withstand,
11. Almost immediately after ignition, the booster seals vented, giving evidence that the cold stress and the metal-softening signal were weakening the system,
12. An anomalous 10 second or so burnthrough of the weakened booster occurred,
13. An anomalous "light"—possibly a Soviet EM missile —was observed to play on the rocket before it blew up,
14. An anomalous "flat plate" earthquake over about 11 states occurred within days after destruction of the shuttle. This type of quake is strongly suspicious, and it was probably the test of the grid/howitzers in a ground wave interferometry mode,
15. Substantial winds and air turbulence over the launch site increased the stress on the Challenger as it rose through this region. With a giant cloud radial in the area, one strongly suspects that the turbulence may have been deliberately created or augmented by the Soviet scalar EM grid,
16. A few days later, from 1-4 February 1986, many birds inadvertently flew into the new, localized "pivot point" at Birmingham, Alabama, encountered the high frequency components, and dead birds fell from the sky in substantial numbers. Many different kinds of birds were involved.
17. Most significant of all, General Daniel Graham has reported that, on the evening after the death of the Challenger, the Soviet KGB gave a party and celebrated the success of their perfect active measures against the Challenger! Note that all development, deployment, employment, and command and control of the Soviet scalar EM weapons are under the KGB.



Finally, a U.S. classified investigation of the Challenger disaster was ordered by Congress, but its results have not been made public. Beyond any doubt the Soviets destroyed the Challenger, and killed the seven brave astronauts aboard the spaceship.

On **Apr. 18, 1985** a Titan 34-D missile, launched from Vandenberg Air Force Base, blew up 5 seconds after launch. Video cameras inadvertently caught the Soviet marker beacon, used with the scalar EM howitzer that destroyed the Titan, up and above the explosion, moving independently. Engineer Ron Cole personally examined the video frame by frame and asserted that the hovering ball of light was completely separate. This positive signature leaves no doubt that the Soviets destroyed that missile also. The previous Titan 34-D missile launch there in August, 1985 also blew up just after lift-off.

On **May 3, 1986** a NASA Delta rocket carrying a critically-needed weather satellite failed. The rocket suffered an anomalous "command-type" shutdown of its main engine during launch and began to veer off course, causing the range safety officer to destroy it. On a network video tape replay (several replays in succession), immediately after the loss of the rocket, this author observed that an anomalous light moved up from beneath the rocket and struck it, seconds before the destruction. Subsequent attempts to locate that particular videotape have met with failure. Several other persons were watching the replay with me at the time, and saw the anomalous light strike the rocket. The light plus the "internal command surges" are strongly indicative of time-reversed EM pulses and interferometry from a pumped phase conjugate mirror adjunct operating with an over-the-horizon tracking mode.

Also in **May, 1986** a European Ariane missile was lost shortly after launch. There is at least one published news analyst report that the French Government concluded that the Soviets had interfered with the missile and caused its loss. No further evidence is available to this author regarding this incident, except one unevaluatable report from a wealthy financier that when he visited the Soviet Union, the French President discussed that issue with Gorbachev.

In **October, 1986**, the Iceland Summit conference was held between Reagan and Gorbachev. The Soviets offered a breathtaking "zero-option" proposal, intended to lead to dismantling of most major strategic nuclear weapons, which would greatly ease the way to much more drastic employment of Soviet EM weapons. In short, if nuclear disarmament could be engineered, the U.S.'s "dead-man fuzing" against extensive employment of Soviet weapons would be almost

eliminated. In that case, with its deployed, massive scalar EM weapons unleashed, the Soviet Union immediately holds the winning hand, and could rapidly proceed to dominate and control most of the earth. The Soviet offer was conditioned on the severe limitation of SDI to the laboratory, however, and Reagan balked at this. The reason for adamant Soviet insistence that the SDI genie must not be tested in space is that, should the U.S. develop scalar EM weapons—such as high energy scalar lasers—and deploy them as SDI modifications, the power would be enormously increased. With one or two shots, such a laser could devastate a whole republic of the USSR.\* If tested in space, prototype SDI launch and deployment vehicles would be available, even though the SDI system was not yet completed and deployed. In that case, the U.S. could possibly quickly launch several scalar EM weapons in retaliation for Soviet strikes against the U.S.—and from space even one weapon could destroy the Soviet Union. Thus, unless the SDI genie is chained up in the lab, a Soviet scalar EM initiative to dominate the world would involve unacceptable risk to the Soviet Union. At this writing, Gorbachev has mounted a great propaganda campaign to try to stimulate U.S. citizens, scientists, and political activists to demand nuclear disarmament, clearing out the U. S. dead-man fuzing.

*\*Their EGPs, however would detonate nuclear warheads and nuclear facilities. The resulting fallout would devastate the earth. Such a use would be suicidal. But it would be a first-strike weapon, if a madman pulled the trigger.*

During the **spring of 1986**, abnormally strong Soviet weather engineering occurred over the U. S., causing a drastic drought in the southeastern U.S. This drought was broken by a colleague who used an extremely powerful scalar EM device to redirect jetstreams. A most unusual and unique signature of the "blocking" against the Soviet scalar EM actions resulted: Two huge circulations developed in the atmosphere, clearly showed as two adjacent giant "holes" in the swirling cloud cover over the middle and eastern U.S. Between these two giant holes, the cloud circulations formed a stream of clouds, moving to the south, looking very: much like a giant vertical "bar" of a huge "Y-shaped" cloud flow.\* Several national weathermen commented on this unusual pattern, which had not been observed before. The pattern continued, day after day, as the blocking continued.

*\* On the weather maps.*

My colleague suffered a drastic illness and a serious operation, which interrupted the blocking operation. Immediately the jet streams changed back and serious drought returned to the southeast U.S.,

devastating a substantial portion of farm crops in the region. After some time, my colleague recovered sufficiently to resume blocking operations, breaking the drought and restoring the rains once again.

**In latter October and early November, 1986**, significant giant radial cloud patterns, associated with Soviet weather engineering using the scalar EM interference grid, were seen and photographed over California in the greater Los Angeles area. On Monday, Nov. 10, 1986 an anomalous, giant "fireball" was seen by hundreds of persons to move from west to east. It was seen over 4 states, and accompanied very sharp changes in the EM grid. An anomalous winter storm was in progress, with cold air spilling down from Canada. The storm penetrated very deeply southward, breaking cold records in a wide area of the mid-United States. At the same time, heat records were being broken in Florida, and generally throughout the southeast. Frank Golden verified by direct measurement that the electrogravitational field of the earth was agitated and most dynamic—in short, significant activity was being introduced by the Soviet scalar EM grid. (The activity was about half what it is when the Soviets are inducing an earthquake.).

On **Wednesday, Nov. 12, 1986**, the author photographed three giant radial cloud patterns—one a "twin"—in Huntsville, Alabama, associated with the anomalous storm, now labeled the "Siberian express" in many news reports.

On Thursday, **Nov. 3, 1986** at Huntsville, the author observed another twin giant radial, gently moving along from west to east. At dusk, another single giant radial was observed at Huntsville. Also, air control radars along the corridor from Los Angeles to Arizona suffered a mysterious failure or "power outage" not long after the "meteor" incident. Reports were received from Montreal, Canada that anomalous TV interference was experienced in that area about the same time the air control radars experienced anomalous failure. This may show that the agent causing the radar failures and TV interference extended across a wide area of North America. Note that the normal [intersection of the Woodpecker beams](#) covers such a broad area of North America in the interference zone of the beams. The so-called "meteor" (actually, a large, rapidly moving light was seen and noise was heard) of Nov. 10 may well have been a large scalar EM ball from the [Woodpecker grid weapon transmitters](#), performing a simulated test of the multiple-vehicle kill mode, using a large "electromagnetic missile" created and moved by the associated scalar howitzers. Complete explanation of the operation of these systems is contained in Fer-de-Lance and other books and papers.

As **this background summary is cutoff in mid November 1986**, it does not include evidence of indications that exist for Soviet scalar EM enhancement or biological warfare against the West. The reader should be aware of the potential scalar BW threat, and the general lack of any effort to collate evidence in that area. [That area has been covered in the author's book, **AIDS: Biological Warfare**, Tesla book Co., 1988. For complete coverage, see the author's Gravitobiology: A New Physics, 1989.]

For the present Soviet tactic, see the author's "Glasnost: 29th Move of a 30-Move Chess Game," Raum & Zeit. in publication, and "Political Manipulation of Unified Field Theory," Raum & Zeit. in publication.

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### ADDITIONAL NOTES AND REFERENCES

14. For details of the mysterious explosions of six major Soviet missile ammunition storage sites in seven months, see photograph, Jane's Defence Weekly, 2(3), July 28, 1984, p. 92; see also Mark Daly, "Goa and Goblet SAMs in Severomorsk explosion," Jane's Defence Weekly, 2(6), Aug. 18, 1984, p. 224; Derek Wood, "Soviets' northern fleet disabled... 'not viable' for six months," Jane's Defence Weekly, 2(1), July 14, 1984, p.3; Derek Wood, "Six explosions in the past seven months," Jane's Defence Weekly, 2(1), July 14, 1984, p. 3; John Moore, "The aftermath of Severomorsk," Jane's Defence Weekly, 2(6), Aug. 18, 1984, p.224.

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Note from Webmaster: it doesn't stop in 1986.

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## [ANALYSIS OF SCALAR/ELECTROMAGNETIC TECHNOLOGY](#)

### **Some Characteristics of the Phase Conjugate Wave**

by Lt. Col. T.E. Bearden (ret'd.), 1990

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7. The phase conjugate wave was apparently discovered by Nikola Tesla.

This was the secret of his wireless transmission of energy at a distance without losses. Transmitting time-reversed waves resulted in transmission of convergent, hence energy-conserving, beams. Tesla described it as if he had an invisible wire through the vacuum, and transmitted all the energy down this wire.

Phase conjugation was also the secret of his magnifying transmitter. The earth is a nonlinear medium, and provides a very good phase conjugate mirror in the range of 0.001 Hz through 1 megahertz. That is, the highly pressurized internal portions of the earth are already "trembling," electro magnetically at those frequencies, but in scalar EM resonance due to combined EM waves and their phase conjugate replicas. If a powerful EM wave of resonant frequency is then transmitted into the earth, with a large elevated capacitance so that a resonant system is established, then a strong resonant standing scalar EM wave can be established into and through the earth's fiery core. The core then acts as a giant, self-powered cathode, and continually feeds scalar energy into the established standing scalar EM wave. Equilibrium is established with highly amplified, enormous scalar EM energy in the earth at that transmitted frequency.

In other words, the earth has now been converted to a **giant pumped phase conjugate mirror** tuned to the transmitter frequency. Most of the energy in the "pump wave" comes from the fiery core (cathode).

Now if another transmitter/receiver station somewhere else on the

earth transmits a weak signal into the earth at the pump wave frequency, a response phase conjugate replica wave—highly amplified—will emerge from the earth at that point, and be received in the receiver. This is straightforward pumped phase conjugate mirror theory, and hundreds of scientific papers already show the basic effect (over 100 even show that it is possible to produce self-pumping, which is the case here).

The energy received will be negative energy. The visible spectrum, e. g., will be reversed to the external observer, and it will appear a brilliant—even blinding —white.

Tesla's magnifying transmitter, then, would have powered the entire world—just as he stated.

In May 1985, with a proprietary detection system, Frank Golden showed signals from a massive Soviet exercise of the entire [Soviet strategic scalar EM weapon complex](#). The earth was in captured (forced) scalar resonance of 54 frequencies: 27 pairs, with the members of each pair separated by 12 kilohertz. Enormous energy was being extracted from earth, and used to power giant scalar EM interferometers and phase conjugate beam weapons of enormous power. The earth and oceans were also alive with Soviet scalar EM transmissions to Soviet underwater submarines and distant forces. These exercises appear to have been completely undetected by Western intelligence, since it has no knowledge of scalar EM techniques and possesses no scalar EM detectors.

# [The Tom Bearden Website](#)

## **"Dossier Priore"** by Jean-Michel Graille

### **Photographs**

#### [Cover](#)

#### [Plate 1](#)

The inauguration: the construction of the M 600 had not yet started but, symbolically, the Mayor of Bordeaux starts the smaller machine at close range. (Archives R.P.)

#### [Plate 2](#)

Inaugural scroll.

#### [Plate 3](#)

An information meeting held in Bordeaux. From left to right: Antoine Priore, Robert Courier, Raymond Pautrizel and Francis Berlureau. (Archives R.P.)

#### [Plate 4](#)

February 1975. Antoine Priore and Professor Pautrizel at the "suspended" base of the M 600, the enormous experimental prototype built by Leroy-Somer. The apparatus would only function for a few days but did make it possible to carry out some experiments with very promising results.

#### [Plate 5](#)

Anne-Nelly Pautrizel. Professor Pautrizel's sister and collaborator, who participated in almost all the experiments with the Priore apparatus since 1968. (Photo J.M.G.)

#### [Plate 6](#)

Pierette Châteaureynaud-Duprat, head of research at C. N.R.S., doctor of science and specialist in grafts, carried out in 1969 and 1970 two series of decisive experiments concerning the proof and the explanation of the biological effectiveness of the Priore Ray.



[Plate 7](#)

The Priore machine. The model financed by Pautrizel, the only one which is still likely to function, the one with which patients will be officially looked after as from 1977, is finished in August 1968. In fact, the apparatus is installed all in one place.

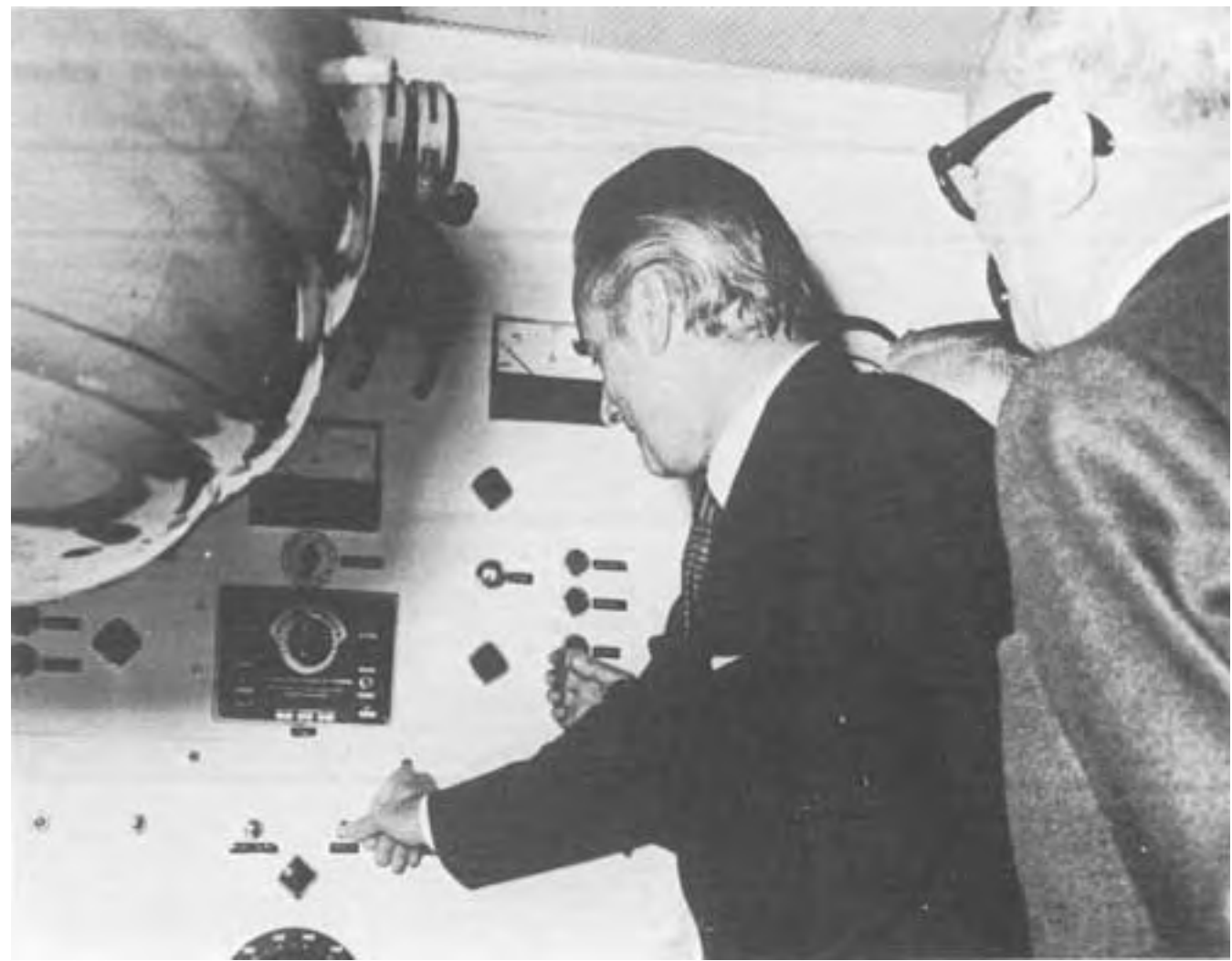
[Plate 8](#)

1969. Old friends of Priore retrace the road to Floirac. With a monkey-wrench or soldering-iron in hand, they devote all their leisure time to building the new machine for their friend. Here, on the scales, inspector Plantin, of the legal identity service. In coveralls, scarf around his neck, municipal worker M. Léglise.  
(Archives R.P.)

[Plate 9](#)

A courageous man. Perpetual Secretary of the Academy of Sciences, elder President of the Academy of Medicine, "father" of endocrinology and fertilization, Professor Robert Courrier could have benefited from its prestige and its retirement. At 67, he took all the risks to defend that which he believed in deeply. He has fought now for twenty years. One of the rare photos of him, in the company of Antoine Priore and Professor Pautrizel, taken on 25th March 1970 in the laboratory at Floirac.  
(Archives R.P.)







**Translation:**

**JACQUES CHABAN-DELMAS  
THE MAYOR OF BORDEAUX  
PRESIDENT OF THE URBAN COMMUNITY  
AND  
ANTOINE PRIORE  
HAVE INSTALLED ON THE 21 NOVEMBER 1970  
THE FIRST STONE OF THE SCIENTIFIC RESEARCH LABORATORY  
FOR THE BIOLOGICAL EFFECTS OF THE PRIORE RAY**

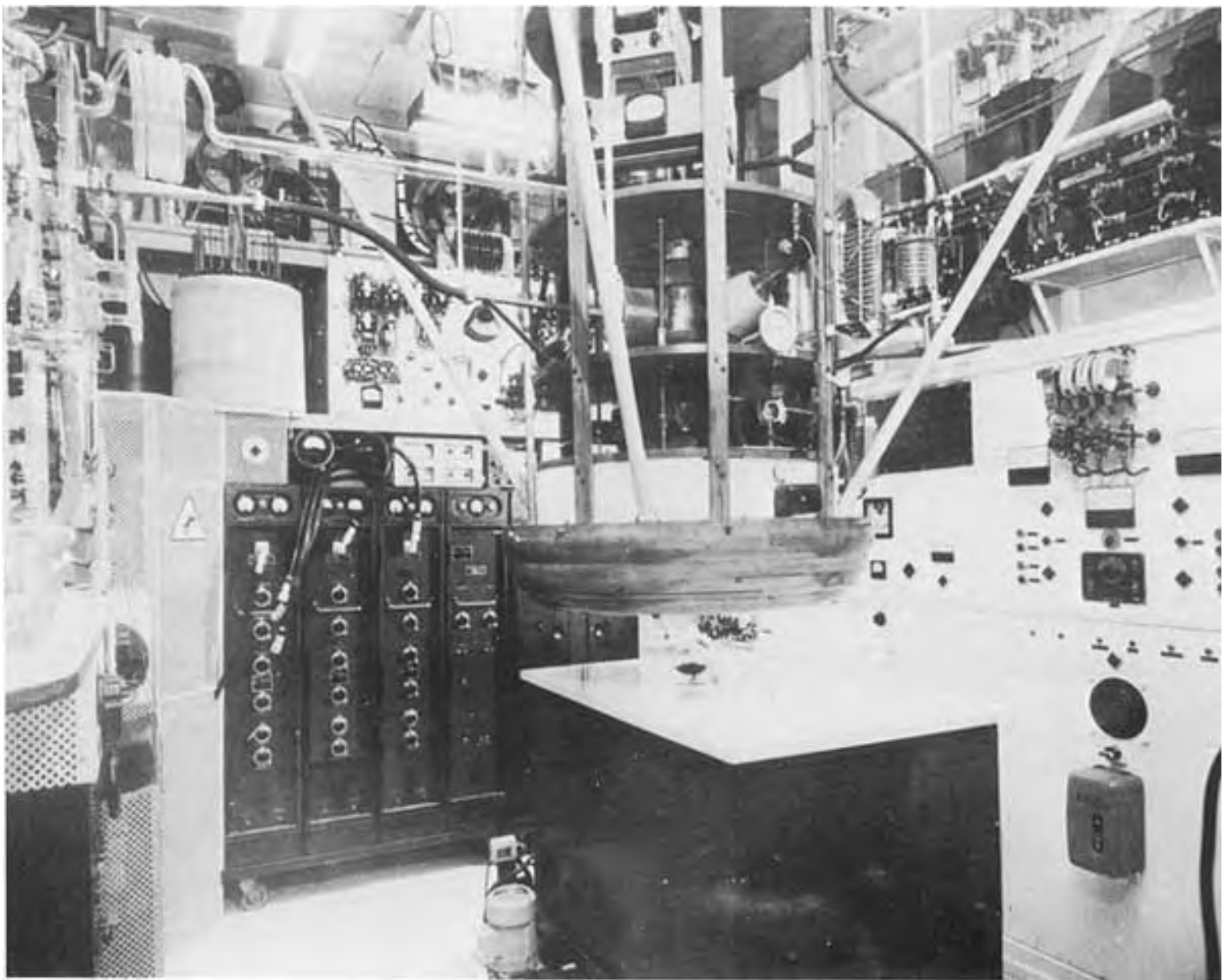


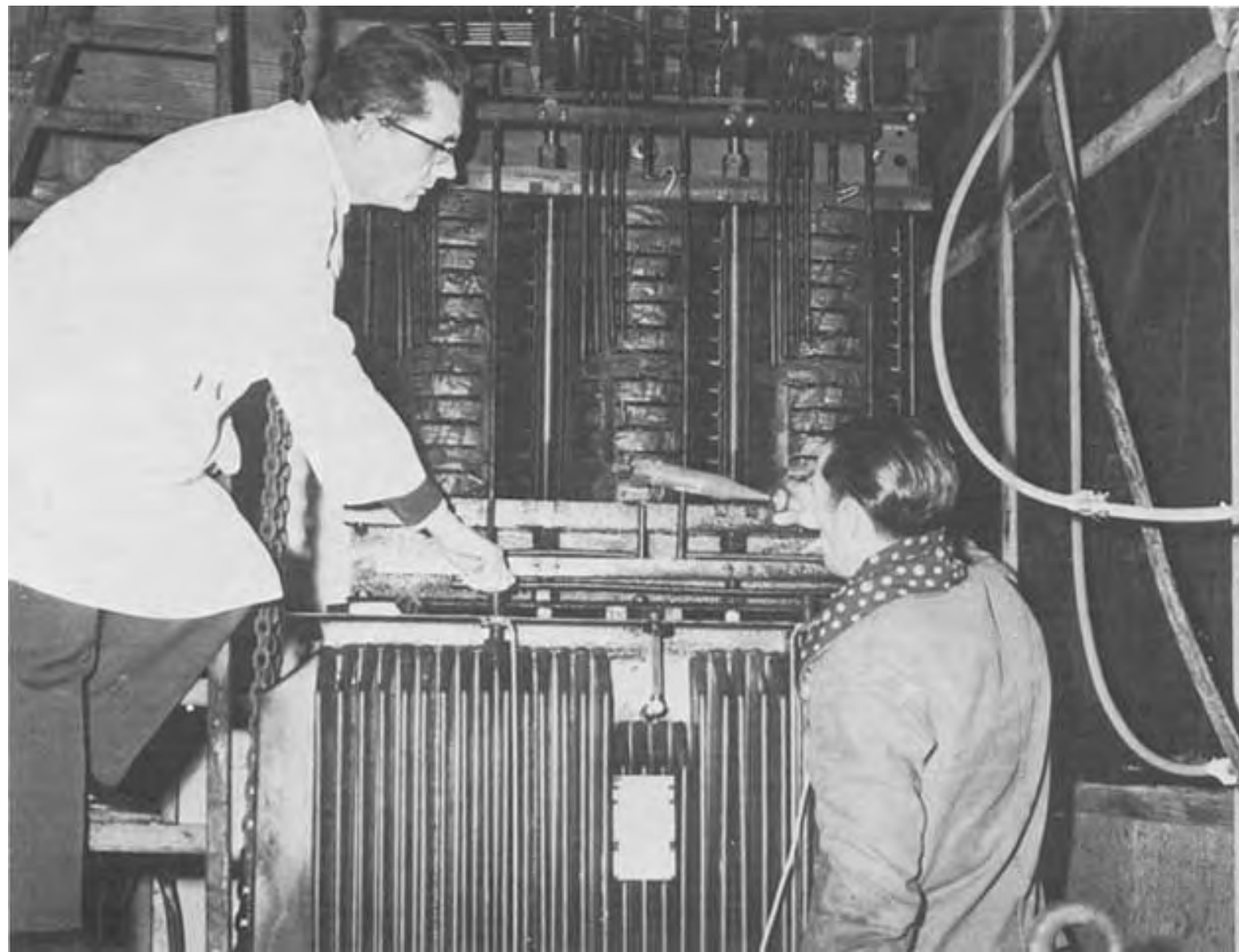








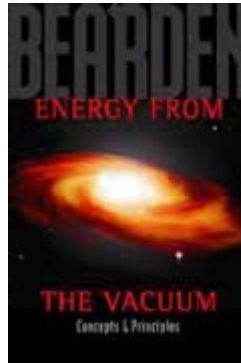






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## ELECTRET

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Electret – a piece of insulating or dielectric material which has been heated and specially cooled to provide dipolar domains and thus possess an overall fixed dipolarity. It is the electrical analogy of a permanent magnet. Instead of opposite magnetic poles the electret has opposing electrical poles of trapped opposite charges. As a result, there exists a fixed “static” potential between the two opposite charges of the dipolar electret.

Because of the opposite charges and the electrostatic scalar potential, several characteristics come into play.

- (1) By the proven asymmetry of opposite charges, this electrical dipole must continuously absorb virtual EM energy from the vacuum and re-emit the energy as observable EM energy output (for a broken symmetry, something virtual must become observable). Since the EM energy “output” of the electret is that electrostatic scalar potential, then the potential must be an ongoing outflow of EM energy.
- (2) That "static" potential – presented with a sort of "frozen waterfall" analogy in CEM/EE theory – actually corresponds to an "unfrozen waterfall" analogy, as beautifully presented by Van Flandern. The “static” potential is comprised of internal parts in continuous motion; these parts are combined longitudinal and scalar photon pairs. At any point, the scalar potential (the voltage difference) between the electret’s dipolar ends is continuously being established and replenished by the ongoing EM energy flow.
- (3) Corresponding to Van Flandern's analogy, [Whittaker showed in 1903](#) that every scalar potential decomposes into

sets of internal EM energy flows in the form of bidirectional longitudinal EM wave pairs. Hence Van Flandern's analogy is correct and the standard EM textbook is wrong, as to the nature of a "static potential". Indeed, every "static" EM field or potential decomposes into just such sets of internal energy flows, as shown by combining two papers by Whittaker in 1903 and 1904.

(4) The EM energy flow comprising the "static" potential occurs both in space and time. Classical EM essentially ignores the time aspects, but they can be gathered from quantum field theory. In quantum field theory, not only are there *longitudinal* photons, but also there are *time-polarized* or "scalar" photons. Neither the longitudinal photon nor the scalar photon is individually observable. However, the combination of the two produces voltage – that is, the scalar electric potential. Said another way, any voltage (scalar potential) must decompose into the flow of such photon pairs. From the wave view, the scalar potential decomposes into ongoing flow of longitudinal and time-polarized EM wave pairs. If we include the time-polarized waves in addition to the longitudinal waves, then from the vacuum's virtual state fluctuation energy the electret's dipolarity produces an *observable* set of ongoing EM energy flows. This observable energy flow set is comprised of both longitudinal EM waves and time-polarized EM waves in combination, thereby making "voltage" – thus creating and continuously replenishing that scalar potential between the electret's dipole. For that reason, a so-called "static" voltage, applied to a circuit, will easily flow throughout the circuit. Supposedly a scalar concept, it nevertheless demonstrates vector flow characteristics.

(5) As a dipole, the electret is already a system which extracts virtual state energy from the vacuum and transduces it into real, observable EM energy pouring steadily from the dipolarity. This process, evidenced by the steady presence of the potential, totally violates the present hoary old second law of thermodynamics because it steadily produces negative entropy. Instead of the "truly frozen static" potential taught in CEM/EE theory, the "static" potential is a nonequilibrium steady state (NESS) system. It is continuously producing negative entropy (absorbing the totally disordered virtual state fluctuation energy of the vacuum, re-ordering it, coherently integrating it to observable (quantum) size, and then re-emitting the energy as real observable EM energy flow).

(6) Hence the electret (as is any dipolarity) is a physical example of a real electromagnetic system exhibiting the continuous negative entropy production behavior shown theoretically possible by Evans and Rondoni.

(7) For proper understanding of the electret and the dipole,

Leyton geometry is required rather than the more limited 1872 Klein geometry presently used. Klein geometry essentially “omits” all such negative entropy operations, while Leyton geometry includes them automatically.

(9) In classical EM and electrical engineering, it is not commonly recognized that there is no such thing as an “isolated charge”. Indeed, a so-called “isolated charge” is engaged in an ongoing energetic exchange with its surrounding virtual state vacuum. It *polarizes* its vacuum, producing opposite virtual charges surrounding it. So the “isolated charge” is actually a *special kind of electret*, and thus a dipolarity, once its vacuum polarization activity is accounted.

(10) In modern physics the classical “finite charge” is actually composed of an infinite “bare” charge surrounded by an infinite charge of opposite sign in the seething vacuum. Our instruments, peering through this external Faraday screen at the bare charge inside, will “see” and measure a finite difference of the two infinite charges, with the sign of the internal infinite charge prevailing. Hence our instruments “see” and measure the “finite charge” that is printed in our textbooks for each fundamental particle, etc. But the real charge physically there is comprised of two infinite charges, each having infinite charge and infinite energy. Hence as a special “electret” the classical “isolated charge” easily sits there and continuously radiates real EM energy, perpetually, because its infinite energy is never exhausted by finite emission. The fundamental charges present in the original mass of the universe have been continuously radiating real EM energy in that fashion, for something like 13.7 billion years, and have shown no signs of “running down”.

(11) Since any charge or dipole is a special form of electret, which continuously radiates real EM energy, then the problem in the present energy crisis is not in having any shortage of energy, but in our scientists and engineers having totally failed to understand “static” EM fields and potentials and things such as electrets, and having totally failed to develop circuits and systems which freely collect and use EM energy from these steady EM energy flow sources that are universally available in every circuit and system. Instead, our scientists have misunderstood completely, erroneously assumed away Whittaker’s constituent energy flows, and have developed only that very limited class of EM system which is Lorentz-symmetric and continually kills its dipolar (electret) source of energy faster than it will power the loads. Hence we pay the power company (i) to deliberately engage in a giant wrestling match inside its generators and lose, and (ii) to require us to continually input – and pay for – the mechanical energy to crank the generator shaft, just to continually restore the



dipolarity inside the generator and the resulting free energy flow from the vacuum, that the inane circuits keep destroying.

Electrets are used in a wide range of applications, from air filters to microphones, and there are more and more electret applications emerging every year.

Typical applications are in electret transducers; electrophotography; electrostatic recording; electret air filters; electret motors and generators; electret dosimeters; piezoelectric polymer transducers; pyroelectric polymer devices, electret microphones, etc. Electret motors have also been developed and used, although the achieved power outputs up to the present have been small. Because of their ability to generate a constant electric field, electrets have been used as a method of electronic focusing in applications such as gas filters and microphones. In recent years a much wider application of electrets has been made in new applications ranging from controlling lubrication in machine parts to regulating drug diffusion.

In the energy-from-the-vacuum field, there is evidence that Sweet also was able to induce electret characteristics in his conditioned self-resonating permanent magnets, thereby producing a free and powerful Poynting energy flow of  $E \times H$  from the magnets with coupled electret characteristics. This intense EM energy flow interacted with the surrounding coils of [Sweet's Vacuum Triode Amplifier](#), which produced a  $COP = 1,500,000$ . Later he was also successful in producing a unit with a little clamped positive feedback, so that it became self-powering and no input by the operator was required, once the unit was in operation.

A good coverage of electrets, their principles, materials, conditioning, uses, and operation is [Electrets](#), 3rd Edition, Vol. I, edited by G. Sessler, Laplacian Press, 1998. The booksellers can be contacted at [electro@electrostatic.com](mailto:electro@electrostatic.com), or by phone at 408-779-7774.

Another more expensive but excellent book covering some additional aspects is Bladimir N. Kestelman, Leonid S. Pinchuk, and Victor A. Goldade, [Electrets in Engineering: Fundamentals and Applications](#), Kluwer Academic Publishers, 2000.

# BEARDEN

## THE FINAL SECRET OF FREE ENERGY



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# THE FINAL SECRET OF FREE ENERGY

© 1993 T. E. Bearden

A.D.A.S.

P.O. Box 1472

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February 9, 1993  
(slightly revised March 23, 1993)

## Foreword

This paper contains the real secret of tapping the vacuum energy very simply, using almost any source of potential (battery, electrostatic generator a la Swiss electrostatic device (the Testatika), elevated wire wire/250 V/m in the earth/ionosphere potential, etc). The objective is for the moderately technical reader to understand how to build and understand not only a single device, but also hundreds of different kinds of them. While it is quite simple, the "magic principle" contained in this paper only took me some 30 years to discover.

The precise definitions necessary to understand the free energy rationale are included. Also included are some very simple pseudo equations for the process. Do not underestimate these simple pseudo equations -- they tell the tale that's needed.

Also, there has been little or no time to "dress up" the paper. It's simply written down very informally, to get the necessary points across.

Nearly everything *fundamental* that we've been taught about EM energy is wrong or incomplete. Even the *definition of energy* in physics is wrong! Let me summarize a few of the things that are wrong with the classical electromagnetics (CEM) model as follows:

CEM is still utilizing a model based on a material ether. Although the Michelson-Morley experiment destroyed the material ether assumption in 1887, the classical EM model has never been corrected. It also contains no definition of charge, and no definition of potential. In many cases, algorithms to calculate a magnitude are boldly and erroneously advanced as "definitions." CEM still prescribes the force fields as the causes of all EM phenomena; it has been known since 1959 that forces are effects and not causes, that EM force fields exist only in and on the charged particles of mass in the physical system, and that the potentials are the primary causes of EM phenomena. The lack of definitive definitions of mass and force in mechanics is carried over into EM theory; there is no adequate definition of EM force or of EM mass. The magnitude of the electrical charge on an electron is not quantized. Instead, it is discretized, being a function of the magnitude of the virtual photon flux (VPF) exchange between the vacuum and the charged particle. When the charged particle is placed in a potential that differs from ambient, then the magnitude of the VPF -- and hence the magnitude of the electric charge on the electron -- is altered. The CEM assumption of an "empty vacuum" is totally falsified by modern quantum mechanics. The CEM notion that EM force fields and force field waves exist in vacuum is totally false. Only potentials and potential gradients exist in the vacuum. EM waves in vacuum are not force field waves as CEM prescribes; instead, they are oscillations of potentials and potential gradients. Potentials have a bidirectional EM wave-pair structure, where the bidirectional wave pairs are phaselocked in a harmonic series. In each wave pair, photons and antiphotons are continually coupling (into spin-2 gravitons) and decoupling. This is where gravitation and electromagnetics are unified. The CEM notion that singular EM forces exist in either matter or the vacuum is false; Newton's third law requires that

all forces exist in opposite pairs. Not a single one of the equations universally taught as "Maxwell's equations" ever appeared in any book or paper by James Clerk Maxwell; instead, they are Oliver Heaviside's equations. Maxwell's actual theory was written in quaternions, which is a complete system of mathematics. The Heaviside/Gibbs vector version

(1) has a lower topology,

(2) is not a complete system of mathematics, and

(3) actually captured only a subset of Maxwell's actual theory.

Tensor theory does not recapture that which was lost.

There are even more errors in CEM, but these should suffice to make the point: *Classical electromagnetics theory is seriously flawed, with archaic foundations, riddled with errors, and it should be completely redone.* Until this revamping of CEM is accomplished, the present model solidly blocks free energy, antigravity, a unified physical field theory, and a unified theory of mind and matter interaction.

A second paper this year will detail the exact long-term causative mechanism for cancer and leukemia, and the exact mechanism for essentially 100% cure of terminal tumors in laboratory animals, demonstrated by the Priore team in France in the late 1960s and early 1970s. The same mechanism can be used to cure AIDS.

Throughout the world, humankind is suffering. In the poor populations of the world, early death is the norm, as is frequent famine. One third of the human race goes to bed hungry each night. Protein starvation of children is common. One third of the human race is infected with worms. Many other diseases ravage the far-flung poor peoples of the world. They have little or no industries. They have no abundant electrical power. They have little education, and little modern knowledge. They have little or no medical treatment. In short, they are born without hope; live in misery, filth, disease, and poverty, and die without dignity.

Meanwhile, the factories, cities, and enclaves of the "developed and developing" worlds belch forth fumes, toxic and hazardous wastes, and pollutants. They also spew forth weaponry which for one reason or another is used to arm the poorer nations, for use in destroying themselves and their impoverished neighbors. Warfare, terror, banditry, despotism, and all the four horsemen of the Apocalypse are truly loosed in the earth.

We simply must do better than that. And we *can* do better than that! But to do better, we've got to make the basics available to impoverished nations, cheaply and easily. Primary among their needs are energy and medical treatment. Given those, populations can be stabilized, people educated, development begun, and the living standard drastically elevated.

So that is the immediate goal. In this paper, I am freely giving away what required me an arduous 30 years of my life to discover. Shortly we will also detail the new methodology for a new therapeutic science, hopefully to cure the diseases that ravage humanity.

God willing, this paper will trigger a thousand, or even ten thousand, scientists and engineers to develop overunity energy devices. If so, shortly we can rid our biosphere of noxious automobile and factory exhausts, radioactive nuclear wastes, and massive oil spills. We can remove many of the hydrocarbon combustion pollutants from the air, stop acid rain and the destruction of our forests, and stop the steady rise of carbon monoxide in our air. If that truly tends toward a "Greenhouse" effect, then we can halt that effect as well.

The Creator has always given us bountiful free electrical energy, everywhere, easily and readily for the simple taking. It has only been our own blindness and folly that have prevented us from seeing and using this free energy bounty.

So here is the final secret of abundant, free electrical energy. Please use the knowledge well and see that its benefits also accrue to those impoverished ones who need it so desperately. Remember the adage, "Inasmuch as you have done it to these little ones..."

*This is for those little ones. You are our brothers and sisters. We want you to live. And we want you to have a better quality of life, not just bare existence. We care.*

Tom Bearden

February 9, 1993

## THE FINAL SECRET OF FREE ENERGY

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### Some Definitions

**The Quantum Mechanical Vacuum:** First we need some definitions. We start by assuming the *quantum mechanical vacuum*.<sup>1</sup> Empty "spacetime" is filled with an incredibly intense flux of virtual particles. It is a plenum, not an emptiness. We shall be interested only in the fantastic flux of *virtual photons*, for we are discussing electromagnetics.

**Energy and Potential:** *Energy* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. *EM energy* is any ordering, either static or dynamic, in the virtual photon flux (VPF) of vacuum. That is, for a particular kind of "field" energy, we simply choose the so-called quantum particle of that field, and consider only that kind of virtual particle flux.

*Potential* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. Hey! That's exactly the same definition as energy. Quite correct. Energy and potential are identically the same. Neither is presently defined correctly in physics.

Energy is normally defined as "Energy is the capacity to do work." That's totally false. Energy has the capacity to do work, because work is correctly defined as the dissipation (disordering; scattering) of energy (order). The scattering of energy is work. It is not energy! I.e., *energy is not definable as its own scattering!*

Look at it this way: A man *has* the capacity to catch fish. That is true, but it is not a definition, since a definition must in some sense be an *identity*. You cannot say that a man *is* the capacity to catch fish! That may be a submitted definition, all right, but it is false. Similarly, energy *has* the capacity to do work; that is one of its attributes. But energy *IS* the ordering in the VPF (we are referring from now on primarily only to EM).

**Scalar and Vector Potentials:** The *scalar potential* is any static (with respect to the external observer) ordering in the VPF of vacuum. The *vector potential* is any dynamic (with respect to the external observer) ordering in the VPF of vacuum. We shall be interested in the electrostatic scalar potential. So it is a static ordering -- a stationary *template* -- in the VPF of vacuum, much as a whirlpool is a stationary ordering (template, form) in the rushing flow of a river.

### The Scalar Potential Has An Internal Structure

**The Structure of the Scalar Potential:** According to rigorous proofs by Whittaker<sup>2</sup> and Ziolkowski,<sup>3</sup> any scalar potential can be mathematically decomposed into a *harmonic series of bidirectional wave pairs*. Figure 1 shows this Whittaker/Ziolkowski (WZ) structure. In each pair, the forward-time wave is going in one direction, and its phase conjugate (time-reversed) replica wave is going in the other. According to the so-called *distortion correction theorem*<sup>4</sup> of nonlinear phase conjugate optics, this PCR wave must precisely superpose spatially with its partner wave in the pair. The two waves are *in-phase spatially*, but 180 degrees *out of phase in time*. The wave is made of *photons*, and the antiwave (PCR wave) is made of *antiphotons*. It follows that, as wave and antiwave pass through each other, the photons and antiphotons are coupling and uncoupling with each other, because the antiphoton is a PCR photon, and PCR's precisely superpose spatially with their partner. A photon or antiphoton has wave characteristics, because it has a frequency; if the wave aspects are perfectly ordered and perfectly correlated, then so are the photon's particle aspects.

**A Potential Is An Ordering Across the Universe:** So we have -- astoundingly -- perfect VPF inner ordering infolded in the electrostatic scalar potential! We also have perfect wave/antiwave ordering infolded in there. When you collect a simple set of charges on a small ball or in a region, the scalar EM potential from that set of charges reaches across the universe. In it you have an infinite harmonic series of phase-locked time-forward EM waves going out from the charges to all distant points of the entire universe. And you have an infinite harmonic series of phase-locked time-reversed EM waves coming from all points of the universe, back to the "collected charges" source.

**A Potential Is A River of Energy:** The point is, you have established a *mighty, hidden, 2-way river of energy* between that collection of charges and every other point in the universe. There is infinite energy in each of those infolded waves and antiwaves. But in a localized region, the *energy density* in each wave is finite. Since in finite circuits the potential interacts with a localized set of mass, we shall be concerned with the *local energy density* (joules/coulomb) *of the potential*.

But forget the conventional myth of visualizing the potential as pushing a unit charge in from infinity "against the force field" -- there *isn't* any force field in the vacuum, as is well-known in quantum mechanics. Also, Newton's third law requires all forces to occur in pairs -- each pair consisting of a force and its 3rd law reaction force. From that viewpoint alone, there is no such thing as an EM forcefield or force field wave in the vacuum. There are just *gradients of the vacuum potential* present in the vacuum. In the vacuum, an EM wave is actually a wave of the phase locked gradients of the electrostatic scalar potential and of the magnetostatic scalar potential. And each such gradient wave is simultaneously accompanied by its phase conjugate gradient wave, because of Newton's third law.

*Newton's third law requires forces to occur in pairs of equal but antiparallel forces.*

Both wave and antiwave co-exist simultaneously in the vacuum EM wave.<sup>5</sup> Therefore it's a stress potential wave, not a force field wave. It's more like an electromagnetic sound wave,<sup>6</sup> and so it is a longitudinal wave, not a transverse wave. In the EM vacuum wave's interaction with matter (the so-called "photon" interaction), the wave normally half interacts with the electron shells of the atom, giving translation forces, while the anti-wave half interacts with the atomic nucleus, giving the Newtonian 3rd law reaction (recoil) forces (waves). The EM wave in vacuum is an *electrogravitational wave*.

**Energy Is Internally Infinite and Unlimited:** A static potential -- which is identically excess *energy* -- is internally dynamic and infinite. Energy is internally infinite and unlimited! But it has a finite *energy density* in a local region of spacetime. Since energy interacts with matter locally, we shall be concerned with the *local energy density* (joules per coulomb).

**A Principle of Great Importance:** The only way you can have a "chunk" or finite amount of energy to dissipate in a circuit as work is to first have a potential's local energy density interact with a local finite mass collector. The normal interacting mass collector is the free electrons (the free electron gas) in the circuit. You can have, e.g., (joules/coulomb x coulomb); (joules/gram x grams); (joules/m<sup>3</sup> x m<sup>3</sup>); etc.

**Voltage, Force, Potential Gradients, Loads, and Work:** Now let's look at circuitry aspects. Conventionally they are a mess. *Voltage* is "essentially" defined as the "drop in potential." In other words, it's the dissipation (disordering) of a "finite amount" of potential gradient. But the only way you can get a "finite amount" of infinite energy/potential gradient is by first interacting the potential gradient's internal, finite, excess energy density with a finite "collector" mass. E.g., (joules/coulomb available for collection) x (coulombs collecting) = excess joules collected on the interacting coulombs, available for dissipation.

So *voltage* is really the dissipation of a finite collection of excess EM energy/potential gradient. The *dissipation* of potential or of its gradient is not potential! You cannot logically define either potential or energy as its own dissipation!

We presently use the notion of "voltage" in two completely contradictory ways in electrical physics. Here's how we got the confusion: We take a potential gradient (which has a local energy density), and we "collect" it across some charged masses in a locality -- usually the free electrons in the free electron gas in our circuitry. That is, we express the finite energy density of the potential gradient (before collection onto charges) in the local region in terms of *energy per coulomb*. The potential gradient actually is a change to the ambient potential, and so it contains an *excess* energy density (the magnitude may be either positive or negative). We then collect this potential (actually this potential density) on a certain number of coulombs, which places tiny little gradients of potential across (coupled to) each free electron. The local excess energy density of the potential gradient multiplied by the amount of collecting mass gives the amount of excess energy collected (on the interacting charges/coulombs). On each collecting particle, that little gradient, together with the coupling particle, constitutes a tiny force.  $F$  is not just *equal to*  $ma$  (non relativistic case); instead,  $F \equiv (ma)$ , where (mass x acceleration) is considered as a unitary, inseparable thing. So that little *potentialized electron* (that little *EM force*) moves itself around the circuit. In the load (scatterer), the little potentialized electron (the little force) is subjected to jerks and accelerations, thus radiating energy (shucking its gradient). Since this is done in all directions in the scatterer (load), that gets rid of the gradient, reducing the "little force" (potentialized electron) to zero because the little potential gradient is lost due to radiation.

### **Collecting And Dissipating Energy**

**Energy Dissipation and Collection:** Without further ado, we consider the scalar potential's local energy density in terms of *joules per coulomb*. That is, in a specific glob of charges (i.e., in finite circuits), the amount of energy collected from a potential gradient onto the finite number of charges receiving/collecting it, is equal to the number of joules of energy per coulomb that is in the potential gradient, times the number of coulombs collecting (receiving) the potential gradient. The current is the activated (potentialized) coulombs per second that dissipate their potential gradients during that second. The current multiplied by the *time the current flows* gives the activated coulombs that dissipated their activation (potentialization) during that flow time. *Dissipating, activated coulombs* multiplied by the *excess energy collected per activated coulomb* gives the energy dissipated (the work or scattering done) in the load.

We define *collection* as the connection of a potential gradient (a source) to the charged masses in a circuit element (the element is called the *collector*), which for a finite delay time does not allow its potentialized free electrons to move as current. In the collector, during this delay time these trapped electrons are "activated" by potential gradients being coupled to them.



Technically, that delay time in the collector is known as relaxation time,<sup>7</sup> in the case of the free electron gas<sup>8</sup> (in a wire or in a circuit element). A collector then is a circuit element that has a usable, finite relaxation time. During that relaxation time, the trapped electrons are potentialized without movement as current; each collecting/receiving free electron gets a little gradient across it, but no current yet flows. In other words, during this finite relaxation time (collection time), we extract potential from the source, but no current. Thus we extract energy (potential), but no power (which is voltage x amperage). During the relaxation time, we extract from the source only a flow of VPF, which is continually replaced in the source by the vacuum's violent VPF exchange with the source's bipolarity charges. We do not extract power from the battery/source during relaxation time, but we extract free energy density. That free energy density, coupling with a finite quantity of electrons, gives us a collected finite amount of energy. With that background, let's start again, and go through this in a useful "free energy" manner.

**The Electron Gas.** We refer to the conventional model of the free electron gas in a wire.<sup>9</sup> Although the electrons in this gas actually move by quantum mechanical laws and not by classical laws, we shall simply be dealing with the "on the average" case. So we will speak of the electrons and their movement in a classical sense, rather than a quantum mechanical sense, as this will suffice very well for our purposes.

When one connects a circuit to a source of potential gradient (say, to a battery), the first thing that happens nearly instantly is that the potential gradient races onto the coupling wire and heads down it at almost the speed of light. As it goes onto the wire, this gradient "couples" to the free electrons in the free electron gas. However, inside the wire, these electrons can hardly move down the wire at all; they can only "slip" once in a while, yielding a "drift" velocity of a fraction of a cm/sec.<sup>10</sup> On the surface, things are just a little bit different. Most of the "current" in a wire, as is well-known, moves along the surface, giving us the "skin" effect. [For that reason, many cables are stranded of finer wires, to provide more skin surface per cm<sup>3</sup> of copper, and hence more current-carrying capability per cm<sup>3</sup> of copper.]

So, initially, little gradients of potential appear on and across each free electron, with a single little  $\nabla\phi$  on each electron, and coupled to it. The couplet of  $[\nabla\phi \bullet m_e]$ , where  $m_e$  is the mass of the electron, constitutes a small  $\Delta E_e$ . [This is rigorous; the conventional EM notion that an E field exists in the vacuum is absurd, and it is well-known in QM that no observable force field exists in the vacuum. As Feynman pointed out, only the potential for the force field exists in the vacuum,<sup>11</sup> not the force field as such. Or as Lindsay and Margenau pointed out in their Foundations of Physics, one does not have an observable

force except when observable mass is present.<sup>12</sup>]. We have stated it even stronger: Not only is  $F = ma$ , but  $F \equiv ma$  (nonrelativistic case).<sup>13</sup> Since no observable mass exists in vacuum, then no observable F exists there either.

### **Force, Coupled Gradients, and Electron Translation**

**Electrons Coupled to a Potential Gradient Move Themselves.** The point is, when activated by a "coupled potential gradient," the activated electron *moves itself* until it loses its activation (its coupled potential gradient).

Let me say that again, in a little more detail. Forget the standard notion that a force field such as the E-field causes electrons to move. Also forget the notion that the E-field is given by  $E = -\nabla\phi$ . In foundations of physics, those equations are known to be incorrect for the vacuum. EM force fields are known (in QM foundations theory) to be *effects*, existing only in and on the charged particles, and not existing separately at all,<sup>14</sup> or in the vacuum at all.<sup>15</sup> Instead of  $E = -\nabla\phi$ , in the vacuum the correct equation would be something like this:  $P_E = -\nabla\phi$ . In this case, we have correctly stated that the potential gradient  $P_E$  provides the potential for producing an antiparallel E-field in and on a coupling/collecting charged mass, and the magnitude and direction of that

potential gradient will be given by  $-\nabla\phi$ , if and only if a charged mass particle is first introduced so that it couples to  $P_E$ .

At any rate, the activated/potentialized electron moves itself. The reason is that it constitutes a force. Force  $\equiv$  (mass  $\times$  acceleration) (non relativistic case). So the potentialized/activated electron is continuously accelerating. However, it is prevented from easily moving down the wire directly. To begin to do that, it essentially has to first move to the outer skin of the copper conductor.

**The Collector:** We now consider a circuit element that we called a *collector*. (It could be a special coil made of special material, a capacitor with doped plates rather than simple conducting plates, or any one of a number of things). The objective is for the *collector* to be made of special material so that it has a free electron gas whose electrons are momentarily not free to move as current (they continue to move violently around microscopically, but essentially with zero *net* macroscopic translation) for a finite delay (relaxation) time, while they are settling themselves upon the surface and preparing to move as current. Let's call the electrons NNTE (no net translation electrons) during that finite delay (relaxation time). During that "no-current" delay time, the NNTE electrons become potentialized/activated by the potential gradient impressed across the collector. So at the end of the NNT time, the NNTE electrons are potentialized, and each is of the form  $[\nabla\phi \bullet m_e]$ .

### **The Secret of Free Energy**

**Two Circuits/Two Cycles:** We are going to use two circuits and two cycles, as shown in Figure 2:

(1) We shall connect a *collector* to a primary source of potential (to a battery) during the short time that current does not yet flow, but potential does. (In other words, during the relaxation time of the collector, we allow the VPF to flow onto the NNTE electrons of the collector and potentialize (activate) them, but do not yet allow the electrons themselves to flow as current, but only to move transversely in the wiring and collector.) This is **cycle one** of a 2-cycle process: This is collection of a specific amount of current-free potential gradient -- power-free energy -- off the potential-source (the battery) onto a collector. During the collection cycle/time, *current does not and must not flow* (we are discussing the ideal case). We are freely "charging up" the collector as a *secondary battery/source*.

(2) At the end of the collection (potentialization/activation) time/cycle in circuit one, the potentialized collector (the charged secondary source) is sharply switched away from its connection to the primary potential source (the battery), and at the same time it is instantly switched into a separate closed circuit with the load. This is important: In **cycle two**, the potentialized collector (with its finite amount of excess trapped EM energy) and the load are connected in a *completely separate circuit*, and one that is closed, with no connection at all to the original source of potential (in this case, to the battery). Specifically, this "load and potentialized collector" circuit is completely separate from the primary source; during cycle two the primary source (the battery) is not connected to anything.

In other words, all we've taken from the primary source (the battery) is *current-free, force-field-free potential gradient*. So to speak, we've taken a "chunk of potential gradient" from the source, nothing else. You simply multiply the potential gradient's local energy density (the so-called "voltage", which is really excess joules per coulomb) by the number of coulombs of charge that is "activated" (that "collects" this voltage or excess joules/coulomb) in the collector. Specifically, we have not taken any *power* from the battery itself, and so *we have not done any internal work inside the battery upon its internal resistance*, by a "closed circuit electron flow" back into the battery. We have not permitted such a flow.

Instead, *we are using the activated collector as a temporary, secondary battery*. We will utilize this secondary battery in a conventional manner to power the load, *which will also kill the secondary battery* (dissipate its trapped EM energy). But that will *not* affect the primary source. The primary source is never used to directly power the load. It is only used as an infinite source of potential gradient (i.e., as an infinite source of *energy density*).

### **The Standard Power Extraction Circuit**

**The Conventional Circuit:** We digress momentarily: In the standard electrical method, the potential source (which is a bipolarity) is connected across the load. This connects both the external load and the internal resistance of the battery itself in series, as the "total circuit load." Electrons then pour through the external load circuit and through the internal battery resistance, from the "electron rich" polarity of the source to its "electron poor" opposite polarity. The scattering of energy in the internal battery resistance is actually doing work to upset the chemistry that is maintaining the battery's charge separation (the bipolarity). In this manner, the source's separation of charges (which is the "gate" furnishing the potential/energy gradient) is being destroyed as the current flows, and this in turn destroys the source of the potential gradient.

In other words, normally we, engineers, are trained to *kill the bipolarity*, which kills the potential source itself! Incredible as it may be, we, engineers and scientists, have been trained to utilize the free "trapped EM energy" furnished by nature through the source, to destroy the source of the energy/potential, *with the same vigor as they power the external load!* In fact, our teachers simply have never learned any other way to do it except this deliberately "self-destructive" manner!

### **A Waterwheel Analogy**

Imagine, if you will, a waterwheel that powers a mill, with a sluice gate upstream in a river, that diverts some river water into the sluice carrying water to the wheel when the sluice gate is opened into the river. The diverted water flows down to the waterwheel, turning it, and the spent water is fed back into the river below the mill site. Now what fool would connect a pulley onto the waterwheel, with a rope running from the pulley to the sluice gate, so that when the wheel rotated, part of the rotational power also was utilized to close the sluice gate and shut off the water, stopping the waterwheel? If one did so, when the sluice gate was opened, the waterwheel would rotate only until the sluice gate was closed, shutting off the water. Then one would laboriously have to pay to reopen the sluice gate again, then again, then again. No self-respecting "waterwheel engineer" would do such an unthinkable, insane thing. But that's exactly what we engineers, electrical physicists, and scientists have been trained to do! We have no *energy* engineers or *energy* scientists at all; instead, we have all been *power* engineers and *power* scientists. We have all been *energy source killers!* In this paper, we shall try to do better, and rectify "one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history," as Tesla called the conventional electromagnetics.<sup>16</sup> By being *energy* engineers, we shall only have to pay for our energy source *once*, and then we shall draw as much energy from it as we wish.

### **External Load Power Is Free; Only The Power In The Source Costs**

Here's the magic secret of free electrical power: ***The power in the external load is absolutely free, and it always has been free.***<sup>17</sup> ***In any load circuit, the only power you have to pay for, and have ever had to pay for, is the power you incorrectly use to kill your own primary source.*** The only power that "costs" more effort/dollars is the power erroneously utilized inside the source to "close the gate" and kill the primary source. Your electric power company doesn't pay for any of the collected energy on your load circuits that is dissipated to power your house. Instead, the power company charges you for its own ignorance. It charges you for its insane use

of its own freely extracted electrical energy to continually kill the bipolarity in each of its generators, thus continually killing the free electrical source of that generator's energy.<sup>18</sup>

***In any electric circuit, we can continue to indefinitely power the external load indirectly from a source, so long as we are not so naive as to use any of the free energy we extract from the primary source to dissipate back inside the primary source itself and shut it off!***

And we can easily and freely multiply electrical potential. As an example, given a single good source of potential, a hundred radial wires can be connected to the source. The same potential will now appear at each of the ends of the hundred wires. A switcher/collector unit can then operate from each radial line's end, and power external loads, without "loading" the original primary source. This "cascading" can be continued indefinitely. A single power plant, e.g., can power the entire electrical grid of the United States. And a single automobile battery can power a large, agile, electric automobile at highway speeds, with sports car acceleration, with unlimited range, without "refueling," and with no noxious chemical exhaust.

### **Obvious Impacts**

Environmentalists should immediately see that the chemical pollution of the biosphere by mechanistic and processes to obtain energy can be dramatically reduced, to almost negligible levels. *There need be no huge oil tanker spills, for there need be no huge oil tankers.* There need be no worrisome radioactive wastes from nuclear power plants, or abandoned hazardous nuclear plants when their life is finished, because *there need be no nuclear power plants.* There need be no noxious exhausts from jet airplanes (which are really what is diminishing the ozone layer and punching holes in it), automobiles, trucks, buses, innumerable coal-fired and oil-fired power plants, etc.

### **The Electronic Smog Problem**

In fairness we point out that, as the usage of free electrical energy mushrooms, we will be dramatically increasing the low-level EM signal density of the environment, and that too is biologically detrimental. Although beyond the scope of this paper, that cumulative biological damage mechanism has also been uncovered by this author. A formal paper is presently in preparation for presentation in March 1993 at the annual meeting and conference of the Alabama Academy of Science.<sup>19</sup> The paper will also present an entirely new definition of cancer, give its exact long-term cumulative mechanism, and give an exact, scientifically proven mechanism for eliminating cancer, leukemia, and other debilitating diseases such as AIDS. For our purposes here, we simply state that we understand the EM "electronic smog" biological damage mechanism, and how to go about developing a total counter for it. Eventually, we would see a small "counter unit" added to each power unit, alleviating the "electronic smog" problem and preventing biological damage.

### **Only Dissipate Energy From a Collector, Not the Source**

**Completion of the Collection Cycle:** But to return to the completion of our collection cycle (cycle one). *During collection, we have not extracted power from the source. That is vital.* We have not moved the gate through which our source is furnishing free energy. We have not diminished our primary source. From our previous definitions of potential, we have indeed extracted *trapped energy* from the primary source, because we placed its "local energy density" across a certain finite collector/mass, instead of extracting *power* (dissipating energy inside the source or battery to spoil its chemistry and deplete its charge separation).

### **All Energy Is Free**

Here's the incredible truth. The entire universe is filled with mind boggling free energy everywhere, in the simplest of things. Simply scrape your feet on the carpet, and you will collect perhaps 2,000 "volts" on your body. At that time, hidden EM energy is flowing from every point in the universe to your body, and from your body back to every point in the universe. We know that all macroscopic matter is filled with stupendous amounts of electrical charge. So an incredible river of energy -- a great flux -- is driving every single thing, from the smallest to the largest. Opening a gate to extract trapped EM energy is simple. Just collect a bit of charge, or scrape your feet hard, or comb your hair briskly. *All we have to do is not be stupid and close the gate once we've got it opened!*

God has been most kind. We have nothing but free energy everywhere. All energy is furnished to us freely! *It's our own blindness that has made us into energy source killers.* All we have to do is open our eyes to the truth of nature's incredible energy bounty. We must just freely collect that bountiful fruit from Nature's tree, instead of chopping down the tree and killing it.

### **Dissipating The Collected Energy**

**The Work Cycle:** We focus again on cycle two. Shortly after the now-potentialized collector is connected to the load at the beginning of cycle 2 (the *power* cycle, or *energy dissipation* cycle, or *work* cycle), the potential gradient across the potentialized collector is connected (transferred) across the free electrons in the load circuit. We assume that the material of the collector and the switching time have been designed so that, shortly after switching to the loading/work cycle, the activated/potentialized free electrons in the electron gas in the collector reach the skin of the collector, and are free to move as current.

So just after the beginning of cycle two, each of the free electrons in the load circuit now is potentialized and free to move down the wiring. Each potentialized (activated) electron has its own little individual potential gradient across it and coupled to it, due to the overall potential gradient from the collector. Remember, prior to coupling to charges, this potential gradient moves through the circuit at light speed. An EM potential gradient coupled to a charged mass constitutes an *EM force field* (excess trapped EM energy per coulomb, times the number of collecting coulombs). Now each little free electron with its potential gradient forms a little E-field (force/charge), and that little E-field (force/charge) is free to move. That's all it takes to move (accelerate) the little activated electron's mass through the load (the scatterer). We strongly stress that *the potentialized/activated electron moves itself*. It doesn't care whether or not the external battery is attached or not. It is its own little motorboat, with its own little engine driving it.

As the little potentialized electrons reach the load (the scatterer), they bang and clang around in there erratically. That is, the "scatterer" (load) causes spurious accelerations ("scatterings") of these self-driven electrons. As is well-known, when a charge is accelerated, it radiates photons. What actually happens is that these little "jerked around" electrons shuck off their little potential gradients in the load (in the scatterer, or the "jerker-arounder") by emitting/radiating photons in all directions. Hence the heat that is produced in the load; the heat is just these scattered photons. The theory of calorimetry already states that all the excess energy (on the potentialized electrons) will be dissipated as this heat (scattered EM energy).

When all the potentialized electrons have radiated away their potential gradients in the load (scatterer), they are no longer potentialized. The free electron gas is again "quiescent" and no longer potentialized/activated (again, we are talking about "on the average" from a classical viewpoint).

### **Repetition and Review**

**Notice What We've Done:** We took some trapped EM energy density (a chunk of potential gradient, a "voltage" before current flows) from the source, by switching that potential gradient (energy density, which is joules per coulomb) onto a collector (containing a certain number of

coulombs of trapped charges) where the potential gradient activates/potentializes/couples-to these temporarily non translating electrons. So the finite collector collected a finite amount of excess energy [joules/coulomb x collecting (trapped) coulombs] on its now-excited (activated) free electrons. Then, before any current has yet flowed from the source, we switched that potentialized collector (with its temporarily restrained but potentialized electrons; with their finite amount of excess trapped EM energy) away from the source and directly across the load. Shortly thereafter, the relaxation time in the collector expires. The potentialized electrons in the collector are freed to move in the external load circuit, consisting of the collector and the load, and so they do so. The scattering "shock collisions" due to the erratic electron accelerations in the load shake off the little potential gradients on the conduction electrons, emitting photons in all directions, which we call "heat." In shaking off the photons, the electrons lose their little potential gradients, hence lose their activation (excess EM energy).

Rigorously, we have extracted some energy in trapped form, and allowed it to dissipate in the load, "powering the load" for a finite discharge/dissipation time and doing work.<sup>20</sup> *Contrary to the conventional electrical power engineering, we have also done this without doing any work inside the source to diminish its ability to furnish potential gradient.*

### **What Is Energy In An Electric Circuit?**

**Energy in an Electric Circuit:** Here's the principle loud and clear. Energy in an electric circuit involves only the potentialization and depotentialization of the electron carriers in that circuit.<sup>21</sup> It involves only the potential gradient (the joules per coulomb) collected by the circuit to potentialize its electrons, and the number of coulombs of electrons that are potentialized during the collection phase. Electric circuits simply utilize electrons as carriers of "potential gradients," from the source to the load, where these gradients and the activated electrons constitute excess trapped EM energy. In the "shocking/scattering" occurring in the load, the jerking (acceleration) of the electrons causes these activated (trapped-energy-carrying) electrons to shuck off their potential gradients by emitting them as scattered photons (heat).

If one is thoughtless enough to allow the primary potential source to remain in the circuit during the "work" phase, then one is using the potentialized electrons to also go back into the primary source and scatter energy from its internal resistance (internal load), *thereby disorganizing the organization that was producing the source potential and energy in the first place.* If one does that, then all the while one is getting some work (scattering of energy) in the load, one is also steadily getting some work done inside the primary source to steadily destroy it! Literally, one is killing the goose that lays the golden eggs.

**Continued Operations:** But back to our circuit. After we complete one full collection/discharge cycle, we wish to continue producing work in the external load. So we simply switch the collector back away from the load and onto the primary source, collect some more current-free potential, and again independently switch the collector with its repotentialized free electrons back across the load. We can repeat this two-cycle process to potentialize the external load and power it as long as we wish, from a battery or other source of potential, and never take any power at all from the primary battery. We do not need to drain the battery or source at all, in order to power a load, unless we attempt to power it directly. Powering the external load is always free!

Nature has been most kind, and we have been most ignorant. You can have all the *trapped electrical energy* you wish, from any source of potential, for *free*. You can power all the external loads you wish, for free, by using a collector as a secondary source, and simply shuttling potential between the primary source and the collector.<sup>22</sup> But you cannot have power for free from (in) the potential source. If you allow current flow in your collection cycle, you are depleting the separated charges inside the battery that are furnishing the source potential.

### **The Coal-Fired Locomotive**

**Rigorous Analogy of a Coal-Fired Locomotive.** Now here's an exact analogy, to assist in understanding. Imagine a coal-fired train, and a fireman shoveling coal. He has an external load/scatterer of energy (the fire in the firebox under the boiler). He has a primary source of potential/energy (the coal car). No fireman in his right mind would ignite the coal in the chute of the coal bin, to try and get some heat energy into the firebox! [That is, he would not attempt to extract *power* from the source. Yet that's exactly what all we engineers are trained to do at present.] Instead, the fireman takes out (collects) a finite amount (a shovelful) of coal (trapped energy). Coal *per se* (the potential gradient) has a certain energy density per unit volume (trapped joules per unit volume of coal) and the shovel (collector) has a certain volume. Accordingly, the shovelful of coal contains a certain amount of trapped joules of energy. In the fireman's shovel (the collector), *the energy remains in totally trapped form, as coal not afire and without its trapped energy being dissipated as work.* [He doesn't act like a fool and ignite the coal in the shovel either!] He then throws that shovel of coal (collected trapped energy) onto the fire (scatterer), completely separately from the coal bin/source. He continues to repeat his shoveling cycle, and each shovelful of coal added to the fire dissipates additional energy, powering the load.

### **The Free Energy Principle**

**All potential gradient (trapped excess energy density) is free for the taking.**<sup>23</sup> The potential is due to the violent VPF exchange between the vacuum and the separated bipolar charges furnishing the source potential gradient. The energy of the entire universe is flowing through that source potential. You can have as much of this internal VPF flux energy (potential) as you wish, as often as you wish, so long as you don't demand *current* (which is power, or the rate at which the energy is being freed and dissipated). It's really simple. You can have all the *trapped* energy you wish, from any source. You cannot connect to the source and start to dissipate the energy as power, however, without starting to close the "gate" from which your free trapped energy is coming.

In other words, here's the iron rule: **If you draw current, you kill the bipolarity gate furnishing the potential gradient (source of energy density). In that case, you kill the source. If you do not draw current, you do not kill the bipolarity gate and you do not shut down the source. In that case, you can continue to "use" it and extract trapped EM energy from it forever.**

### **Definitions Again**

**Definitions:** I'll put down some simple equations, that may help to explain it more exactly. First we repeat some definitions.

Energy is any ordering imposed upon the virtual particle flux of vacuum. EM energy is any ordering imposed upon the virtual *photon* flux of vacuum. Static energy is an ordering (a template) which is stationary with respect to the external observer. Dynamic energy is an ordering (a template) which is not stationary with respect to the external observer.

Potential: Any ordering imposed upon the virtual particle flux of vacuum. Scalar potential is an ordering (template) that is not moving with respect to the external observer. Vector potential is an ordering (template) that is moving with respect to the external observer.

The scalar EM potential is any static (with respect to the external observer) ordering imposed upon the virtual *photon* flux of vacuum. Etc.

Note again that energy and potential have exactly the same definition. Potential is in fact trapped energy. Scalar EM potential is *static EM energy* (to the external observer) or *trapped* (collected) EM energy. In other words, if one takes off a differential of potential onto a fixed



number of coulombs, one takes off a certain magnitude of trapped EM energy. In other words, one takes out a shovelful of coal from the coal car.

### **Importance of Separation of Charges**

**We Must Not Dispel the Separation of Charges In Our Source:** The difference in our coal-fired train analogy and our electrical circuit is that, in the coal train, the coal in the coal car is not automatically and continually replenished. Also, the coal in the coal car has already been collected by the mass of the coal car, so it is not infinite. In the electrical circuit, the potential gradient in the primary source is continually replenished, automatically, and it is infinite (though it has a finite energy density). The reason is simple. EM potential (in the normal sense) is actually a virtual photon flux exchange between the vacuum (the entire vacuum, all over the universe) and a charged particle or collection of charged particles.<sup>24</sup> Thus the potential (gradient) is a powerful energy flux, pumped by the vacuum and the entire universe, that continues automatically, so long as we do not allow the collected charges in our bipolarity source to be dissipated. In terms of a battery, we achieved separation of charges inside the battery by chemical action, and *we paid for that initially*. Once separated, the charges essentially stay separated (because of the chemistry) unless we foolishly do something to dissipate them, such as upsetting the chemistry, so they are no longer separated positive from negative. So if we don't do anything to these separated charges, they continue to be driven by their fierce exchange of virtual photon flux with the vacuum/universe. If we then simply extract some of that flux exchange, without moving the charges, we are directly "gating" trapped EM energy from the vacuum/charged particle VPF exchange.<sup>25</sup>

### **The Potential Is Infinite And So Is Its Energy Content**

**You Can't Dip The Ocean Dry With a Spoon:** Let's say that another way. The charged particles in our potential source are in a constant, seething, equilibrium exchange of trapped EM energy with the entire universe. That energy exchange is so enormous that, if we gate some of it out to collect on some other "temporarily frozen" charges and potentialize/activate them, the vacuum flux doesn't even miss it. It's like dipping a spoonful of water out of the restless ocean. The hole is instantly filled, and the water replenished. We can dip with that spoon as much as we wish, and the ocean will never run dry, but will simply continue to furnish us water, spoonful by spoonful.

The same is true in our electric circuits. We can have all the potential (trapped EM energy density) we wish, for free, from a single source, so long as we do not allow work to be done inside the source to close off our "gate" and kill our primary source.

### **The Twisted Concept of Voltage**

**Before We Develop Some Pseudo-Equations:** In the equations we wish to develop, we have one problem, due to the lack of insight of conventional electrical physicists. That is, they have insisted upon "measuring" and expressing both the infinite potential (nondissipated) and a certain quantity of potential (dissipated) in volts. So they say "a potential of so many volts." That's nonsense, and totally erroneous. Rigorously, a voltage is a drop or a dissipation of so much (a finite amount of) *collected* excess potential/energy. You "measure" the voltage in a voltmeter by impressing a potential gradient upon the electron gas in the circuitry, wherein you collect or get in your voltmeter so much [(joules/coulomb) x coulombs]. A tiny current (coulombs/second) from this internal collection then flows for a finite time through the resistance of the voltmeter. So you dissipate (joules/coulomb) x (coulombs/second) x (seconds), which gives a certain amount of energy dissipated as work in moving the needle of the voltmeter. The voltmeter is calibrated so that it effectively indicates the *collected energy per coulomb* that was dissipated, and it calls that entity voltage. It involves a finite amount of energy that has already been dissipated as work, and it's a measure of the local energy density of the potential in terms of joules/coulomb. It is *not* a measure of the potential proper. It's after the fact; the extracted

So we'll leave it at that, and we'll adapt the notion of potential the way it is corrupted in electrical circuit theory. There it's used not really as energy, but rather as *excess energy per coulomb of potentialized charge*. I apologize for that difficulty, which is not of my own making, but I must use the conventional notion if we are to greatly clarify the pseudo equations.

**The Pseudo-Equations:** Let us use the following subscripts and letter convention, and develop the nomenclature needed:

But  $V_T \times \text{coul}_T = K_T$  [6]

Or

$[V_T] = [K_T] / [\text{coul}_T] = \text{trapped energy/trapped coulomb [7]}$

$[K_T] = [V_T] \times [\text{coul}_T] = \text{amount of trapped energy, each cycle [8]}$

So that's what we were getting at. The amount of trapped energy you can transfer (in other words, how much coal you get in one shovelful) depends upon the number of trapped electrons you have in the trapped free electron gas in the collector, and the potential gradient you apply to those trapped coulombs to potentialize them.

### **Relaxation Time and Semiconductors**

**Relaxation Time:** The time it takes for the free electrons in a conductor (or material) to reach the skin of the wire after potential is applied, is, of course, called the *relaxation time*. During that time, the free electrons in the gas are "trapped" insofar as producing current (dissipation of the potential) is concerned. However, immediately after the relaxation time ends, current begins and dissipation of the trapped energy begins.

In copper, the relaxation time is incredibly rapid. It's about  $1.5 \times 10^{-19}$  sec. However, in quartz it is about 10 days! So as you can see, we need to get somewhere in between these two values, and so we will have to "mix" or "dope" materials. We must get a sufficiently long relaxation time so that we can switch and collect comfortably in cycle one, then switch into cycle two for dispersion of the freely collected energy in the collector. However, the relaxation time we get must also be short enough to allow quick discharge in the load, as soon as we switch the primary source away from the collector. Actually, we need a *degenerate semiconductor material* instead of plain copper.

**Degenerate Semiconductor Material:** A *semiconductor material* is intermediate between a good conductor and an insulator. It's a nonlinear material, and doped. A *degenerate semiconductor material* is one which has all its conduction bands filled with electrons, and so it thinks it is a conductor. That is, a degenerate semiconductor is essentially a doped conductor, so to speak. As you can see, we can increase the relaxation time in our "conductors" connected to the source by making them of *degenerate semiconductor material*. What we're talking about is "doping" the copper in the wire, and in the collector, so that we can have plenty of time to collect, and switch, and discharge, and switch, and collect, etc.

Now in a doped conductor (degenerate semiconductor), we can tailor the relaxation time by tailoring the doping. We must dope the copper before we make the wire. Why would we wish to do that? We want to overcome the single problem that so far has defeated almost all the "overunity" researchers and inventors.

WHEN YOU CONNECT TO A SOURCE, YOU CAN ONLY EXTRACT CURRENT-FREE POTENTIAL -- FREE "TRAPPED EM ENERGY" -- DURING THE ELECTRON RELAXATION TIME IN THE CONNECTING CONDUCTORS AND SUCCEEDING CIRCUIT COMPONENTS. AFTER THAT, YOU'RE STEADILY EXTRACTING POWER, AND THE ENERGY EXTRACTED FROM THE SOURCE IS BEING PARTIALLY DISSIPATED IN THE RESISTANCE/LOADING OF THE CIRCUIT, AND PARTIALLY DISSIPATED IN THE INTERNAL RESISTANCE OF THE SOURCE. IN THE LATTER DISSIPATION, YOU'RE ALSO DISSIPATING YOUR SOURCE BY DOING WORK ON IT INTERNALLY TO KILL IT.

**Good Copper Wire: Bane of Overunity Inventors:** Many destitute inventors, tinkering and fiddling with overunity devices, finally get something (a circuit or device) that does yield more work out than they had to input. At that point, they usually conclude that it's simply the specific circuit configuration and its conventional functioning that produces the overunity work. However, usually as soon as this configuration is more carefully built with very good materials, boom! It

isn't overunity anymore. The inventors and their assistants then desperately bang and clang away, getting more frustrated as the years pass. The investors get mad, sue for fraud, or get in all sorts of squabbles. The scientists who tested it and found it wanting, pooh-pooh the whole thing as a scam and a fraud, or just a seriously mistaken inventor. Scratch one more "overunity" device.

Most of these inventors got their successful effect (and possibly erratically) when they were struggling with inferior, usually old, usually corroded materials. Actually, the *more* inferior, the better. The more contaminated/doped, the better!

The moment you wire up your circuit with *good copper wire* connected between the battery or primary source and any kind of load including the distributed circuitry loading itself, you can forget about overunity. You will lose it in the copper, after the first  $1.5 \times 10^{-19}$  second!

Think of a really good conductor such as copper as an essentially linear material. Linear means energy conservative. Overunity can only be done with a highly nonlinear effect. So your "conductors" have to be made of nonlinear materials. In fact, they have to be made of degenerate semiconductor material. For the type of circuitry we are talking about, the copper has to be doped and then made into "doped copper" wiring. You also have to utilize the primary battery only to potentialize a collector (secondary battery/source), and then use this secondary battery source to conventionally power the load *while also killing itself*.

**The Wiring And the Collector Must Be of Degenerate Semiconductor (DSC) Material.**<sup>26</sup> A good materials scientist/engineer, together with a decent electrodynamicist, can readily design and tailor some doped copper wiring so that the material in the wiring is a degenerate semiconductor material, with a target (desired) relaxation time. That's what you should use to make the wiring to connect up your source to the collector with, and that type of material is also what you use in your collector. You can use either a coil or a capacitor as the collector, but its "conductive" material has to be degenerate semiconductor material -- in short, it must be doped to have the proper relaxation time. From the collector to the load, however, obviously you want to use a good conductor material. Ordinary copper will do nicely there.

Once you do that, you're in business. When making the DSC material, simply tailor the relaxation time to something which is easily switched. For example, take one millisecond. With a relaxation time of that long, switching is easy. In fact, one could even use good mechanical switching. Or easily use inexpensive ordinary solid state switching, without having to go all the way to nanosecond switching.

Then, in the collector, you calculate the number of "trapped coulombs" you have. Take the "trapped voltage" (current-free potential's energy density per coulomb) you extract from the source during the electron relaxation time after the collector is connected. Multiply the number of trapped coulombs in the collector by the trapped voltage during collection, and you have the amount of energy in joules that you extract FOR FREE, without paying for it, from the source *during every collection cycle*.

### **Sources, Collectors, and Power**

**Tapping Vacuum Energy.** You're getting the excess electrical energy directly from the vacuum, as we briefly pointed out above. The vacuum will freely replenish all the "trapped voltage" you extract from the primary source during the electron relaxation time. It won't replenish a single bit of "dissipated voltage" (power) you extract from the source.

Note that the same considerations apply in the collector. It's got to have a somewhat longer electron relaxation time. Its electrons stay "unrelaxed" during the collection cycle, and allow for some additional switching time to connect to the load. The "trapped voltage" across the collector multiplied by the number of trapped coulombs in it, gives the number of joules of FREE EM

ENERGY you extract and get into and onto the collector (the shovel). In other words, that's your "shovelful of coal." You then throw the "shovelful" onto the fire/load -- you simply disconnect the collector from the primary source and connect it across the external load. The collector (secondary battery) now powers the load and its own internal resistance, "killing" itself while furnishing the energy for powering the external load as well.

**The Source Can Be Almost Anything:** You can use as a source a simple elevated wire, to "tap" potential from the 200-300 volts/meter between earth and ionosphere. Here again, you need to utilize calibrated, doped wire.

Finally, you must adjust the repetition switching in accordance with the discharge time through the load. In other words, you have a serial process as follows:

- (1) extract trapped energy (potential) from the source onto the collector,  $\Delta t_1$ .
- (2) Switch the collector off the source, onto the load, during time  $\Delta t_2$ .
- (3) Wait while the collected energy in the collector discharges through the load, during time  $\Delta t_3$ .
- (4) Switch the collector back off the load and onto the potential source, during time  $\Delta t_4$ . That completes one cycle.

The serial timing simply is  $[\Delta t_1 + \Delta t_2 + \Delta t_3 + \Delta t_4]$ .

If you balance all the doping and the materials design, and correlate the switching, you can get all the free energy you wish. Properly utilized, a single car battery can be used to power an electric automobile indefinitely. Or even to power a battleship. In the real world, of course, you will inevitably have a tiny bit of loss as you go, because there's a finite (though high) resistance between the two poles of your battery. Handling that is a piece of cake. Simply run a separate little collection circuit to collect a little bit of trapped EM energy from the slowly leaking source, and ever so often feed the collected energy back into the battery as power, to "reseparate" the charges (charge the battery) and replace the small amount of the primary source's potential gradient that has been lost. The battery, load, and "trickle charger" then become a closed-circuit free-energy source that will last for years and years.

**Limited Only By One's Imagination:** Of course you can see many variants; this is just the "master key." You can have multiple collectors, collecting trapped energy simultaneously or in sequence off a single source, and pooling their collected energy to more powerfully power the load. You can utilize a very high "voltage", such as in the Swiss electrostatic overunity device, to increase the energy collected per coulomb in each switching (in each shovelful) in accord with equation [8]. For a battery, you can set a separate little collector/load device to trickle-charge the battery, overcoming the small normal "leakage current" that does occur in batteries and in real circuits and devices. The opportunities are endless. You can put in a unit to take mostly only power-free energy from the "power line" feeding your business or home, reducing your utility bill by -- say -- 90%. Or you can simply build a small home power unit to do the whole job, for only a few hundred dollars. *This simple secret can be used to power the world, cheaply and cleanly, and to clean up the biosphere.*

## **Conclusion**

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Well, there you have it. I've given you the benefit of what required most of my adult life to discover. The definitions advanced in this paper are rigorous. It took years of sweat and tears to

come up with them. They're simple, but they will change your entire understanding of electromagnetics, power, and energy once you grasp them. Please read them, and ponder them, several times. One or two readings will not be sufficient to fully grasp what is said here.

Also, hopefully, by this time, the reader is beginning to experience the same emotions as I experienced when I finally discovered how simple it all really was. First one wants to *laugh* for about two hours at how truly ignorant we've all been. Then one wants to *cry* for about two hours for the same reason. This could all have been done a century ago, *if we had ever really understood electromagnetics*.

We've had this electromagnetics around for over 100 years -- Maxwell's book was published in 1873. We got it wrong, starting right with Maxwell and his use of the material ether, which was almost universally assumed at the time. Still, by using quaternions, Maxwell succeeded in packing a great deal more in the model than even he himself recognized. When the vector aspects interacted to form a zero resultant *translationally*, those active interactants were still in there and still fighting and interacting. The scalar component of the quaternion remained, and infolded those struggling vectors and functions of them inside itself. In short, it captured the case where the electromagnetic energies are involved in translation actions which nullify each other translationally (electromagnetically). However, the energies are still in there in the continuing interactants inside the zero vector resultant. As such, they are trapped EM energy. And it is the trapped EM energy inside a mass -- not the mass per se -- which is responsible for gravitation. In other words, *Maxwell's theory already correctly captured the unification of the gravitational field and the electromagnetic field in 1873*.

Then Heaviside et al forced Maxwell's theory into a vector framework, throwing out the scalar component, and discarding the unification of gravitation and electromagnetics along with it. Serious errors were made and still exist in many of the fundamental definitions; in fact, many of them aren't definitions at all. Nearly every engineer and physicist can readily calculate potentials -- *all*, of course, on the "dissipation" side where the potentials are actually the amount of potential that was collected upon a collector and then dissipated. I could find hardly a single physicist who really knew what a scalar potential was prior to a finite amount being collected and dissipated as voltage. Yet 99% of them firmly believed they understood the potential.

So now you have the results of this researcher's long and arduous quest for the golden fleece. Please go forward with it, to make this a better and cleaner world for everyone.

Just remember that the control and use of energy is personal power. The control and use of absolute energy is the control and use of absolute personal power. In the old adage, power corrupts and absolute power corrupts absolutely.

Please use it wisely.

## **NOTES AND REFERENCES**

1. For a good discussion of the modern quantum mechanical view of the vacuum, see I. J. R. Aitchison, "Nothing's plenty: the vacuum in modern field theory," Contemporary Physics, 26(4), 1985, p. 333-391. See also T. D. Lee, Particle Physics and Introduction to Field Theory, Harwood Academic Publishers, New York, 1981 -- particularly Chapter 16, "Vacuum as the source of asymmetry." See Timothy Boyer, "The classical vacuum," Scientific American, Aug. 1985, p. 70; Walter Greiner and Joseph Hamilton, "Is the Vacuum really Empty?", American Scientist, Mar.-Apr. 1980, p. 154; Jack S. Greenberg and Walter Greiner, "Search for the sparking of the vacuum," Physics Today, Aug. 1982, p. 24-32; Richard E. Prange and Peter Strance, "The superconducting vacuum," American Journal of Physics, 52(1), Jan. 1984, p. 19-21; R. Jackiw and J.R. Schrieffer, "The decay of the vacuum," Nuclear Physics B, Vol. 190,

1981, p. 944. See Paul Davies, Superforce, Simon and Schuster, 1984 for a layman's overview of modern physics, including the modern view of the vacuum.

2. E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. Since the scalar potential actually consists totally of a set of hidden bidirectional EM waves, then *scalar interferometry* is possible, and not just an oxymoron as it would seem without considering the inner wave structure of the scalar potential. Two scalar potentials (each of which is a multi-biwave set) can interfere; it is just a special kind of multiple wave interferometry between their internal wave compositions. This is a major point of profound impact on physics. Whittaker in fact showed that *all classical EM* could be replaced by such scalar EM potential interferometry. See E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Further, scalar interferometry has been proven; today it is called the Aharonov-Bohm Effect. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 458-491. For confirmation and discussion, see Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm Effect," Physics Today, 39(1), Jan. 1986, p. 17-20. For an extensive discussion of the Aharonov-bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," Reviews of Modern Physics, 57(2), April 1985. Modern scientists have generally been unaware of the inner wave structure of the interfering potentials and have utilized only quantum mechanical theory for the interference. Consequently, they have been able to experimentally establish the AB effect for only a few thousand Angstroms distance. With the Whittaker formulation, the AB effect becomes distant-independent, because the necessary potentials can be fabricated as laser-like beams, simply by assembling the proper Whittaker multibeam set. Also, Ignatovich pointed out that the Schroedinger potential can also be decomposed into just such an internal bidirectional EM wave set. See V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

3. See Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," Journal of Mathematical Physics, Vol. 26, 1985, p. 861; "Localized Transmission of Wave Energy," Proc. SPIE, Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts, 1989, p. 396-397; "Localized Transmission of Electromagnetic Energy," Physical Review A, Vol. 39, p. 2005; "Localized Wave Transmission Physics and Engineering," Physical Review A, 1992, (in Press); "Localized wave transmission physics and engineering," Proc. SPIE Conference on Intense Microwave and Particle Beams II, Los Angeles, CA, vol. 1407, Jan. 1991, p. 375-386. See Richard W. Ziolkowski, Amr M. Shaarawi, and Ioannis M. Besieris, Nuclear Physics B (Proc. Suppl.), Vol. 6, 1989, p. 255-258; R.W. Ziolkowski, and D.K. Lewis, D.K., "Verification of the Localized Wave Transmission Effect," Journal of Applied Physics, Vol. 68, 1990, p.6083; Richard W. Ziolkowski, Ioannis M. Besieris, and Amr M. Shaarawi, "Localized Wave Representations of Acoustics and Electromagnetic Radiation," Proceedings of the IEEE, 79(10), Oct. 1991, p. 1371-1378; I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "A bidirectional travelling plane wave representation of exact solutions of the scalar wave equation," Journal of Mathematical Physics, 30(6), 1989, p. 806; A.M. Shaarawi, I.M. Besieris, and R.W. Ziolkowski, "A novel approach to the synthesis of nondispersive wave packet solutions to the Klein-Gordon and the Dirac equations," Journal of Mathematical Physics, 31(10), 1990, p. 2511; "A nondispersive wave packet representation of photons and the wave-particle duality of light," UCRL-101694, Lawrence Livermore National Laboratory, Livermore, CA, 1989; "Diffraction of a classical wave packet in a two slit interference experiment," UCRL-100756, Lawrence Livermore National Laboratory, Livermore, CA 1989; "Localized energy pulse trains launched from an open, semi-infinite, circular waveguide," Journal of Applied Physics, 65(2), 1989, p. 805; R.W. Ziolkowski, D.K. Lewis and B.D. Cook, "Experimental verification of the localized wave transmission effect," Physical Review Letters, 62(2), 1989, p. 147; R.W. Ziolkowski and D.K. Lewis, "Verification of the localized wave transmission effect," Journal of Applied Physics, 68(12), 1990, p. 6083; M.K. Tippet and R.W. Ziolkowski, "A



bidirectional wave transformation of the cold plasma equations," Journal of Mathematical Physics, 32(2) 1991, p. 488; A.M. Vengsarkar, I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "Localized energy pulses in optical fiber waveguides: Closed-form approximate solutions," Journal of the Optical Society of America A, 1991.

4. For a precise statement of the distortion correction theorem, see Amnon Yariv, Optical Electronics, 3rd Ed., Holt, Rinehart and Winston, New York, 1985, p. 500-501.

5. Both wave and antiwave co-exist in the vacuum simultaneously, forming a stress wave. The entity that is stressed is the rate of flow of time. In the common interaction with matter, the time-forward half of the stress wave normally interacts with the electron shells of the atom, giving electron translations forces. The time-reversed or anti-wave half interacts with the nucleus, giving the Newtonian 3rd law reaction (recoil) forces. The so-called "EM wave" in vacuum is a *gravitational* wave. It is a wave of oscillation of the rate of flow of time. It is rather like a sound wave in air, as Tesla pointed out, and it is a longitudinal wave, not a transverse "string" wave.

6. As pointed out by Nikola Tesla. Tesla was correct, and all the textbooks with their transverse "string" waves are in error. *There are no strings in the vacuum!*

7. E.g., see Clayton R. Paul and Syed A. Nasar, Introduction to Electromagnetic Fields, 2nd Ed., McGraw-Hill, New York, 1982, p. 113.

8. E.g., see Clayton R. Paul and Syed A. Nasar, *ibid.*, p. 100-101. See also Raymond A. Serway, Physics For Scientists And Engineers, With Modern Physics, Saunders College Publishing, Philadelphia, PA, 3rd Ed., Updated Version, 1992, p. 752-755.

9. Sommerfield's theory of metallic conduction was based on Drude's concept that the outer valence electrons of a conductor, which do not form crystal bonds, are free to migrate through the crystalline lattice structure, and so to form an electron gas. At room temperature, by quantum mechanical considerations, these free electrons are moving randomly, but at an average velocity on the order of  $10^6$  meters per sec. E.g., see Martin A. Plonus, Applied Electromagnetics, McGraw Hill, New York, 1978, p. 54-58, 62-3, 376-7. If you wish to know just how much power exchange is driving the collisions of the electron gas in a copper wire, here is an illustration. In one cubic centimeter of copper wire, the power exchange in and out of the electron gas is some 4 billion billion watts. That's the equivalent of 4 billion large electric power plants, each of 1,000 megawatt capacity. And one cubic centimeter of copper is a lump about the size of the end of our little finger.

10. E. g., see Raymond A. Serway, *ibid.*, p. 743-744 for a discussion and calculation of the electron drift velocity in copper.

11. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. 1, 1963, p. 2-4. In the classical EM theory launched by Maxwell and later modified by Heaviside et al, this problem did not exist for the original theoretical formulation. In that formulation by Maxwell, and continued by Heaviside, a material ether is assumed for the model. The Michelson-Morley experiments of 1887 destroyed the notion of the material ether, but the classical electromagnetics model has never been corrected to rectify its very serious foundations flaw in this respect.

12. Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, 1963, p. 283-287. Note on p. 283 that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. In spite of this, most classical electrodynamicists continue to adhere to the notion that the EM field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field. E.g., see J.D. Jackson, Classical Electrodynamics, 2nd Ed., John Wiley & Sons, New York, 1975, p. 249. Note that holding such a concept is tantamount to

holding on to the material ether, and assuming that the vacuum itself is "measurable" or "observable."

13. The formula  $F = ma$  is simply an algorithm for calculating the magnitude of the force. It states that "the magnitude of the force is equal to the magnitude of mass that is accelerating, multiplied by the magnitude of the acceleration." No such "equals" formula is a definition; it is only a calculational algorithm.

14. This falsifies one of the assumptions in the common notion of the scalar potential; that its gradient in vacuum is a force field. Let us falsify another part of the conventional concept of the potential. Take the notion of forcibly pushing in "against the field" of a trapped charge, a unit charge from infinity. At any point you stop, the work  $n$  you have done on the unit charge is equal to the value of the potential, so it is said. Actually, you pushed in a one-coulomb collector, and have collected and dissipated as work  $n$  joules of energy on that one coulomb. In other words, the energy density of the potential there, if collected and dissipated on a collector, is  $n$ , where  $n$  is joules per coulomb (NOT joules!). To prove it: suppose we go out on 10,000 radials from that point, and push in from infinity 10,000 unit charges from infinity. Then, the total work done "against the potential gradient" ("field", in common language) is now 10,000  $n$ . This makes no sense at all from the conventional view (which carefully refrains from multiple collectors!). It makes good sense from our view of the potential as having infinite energy but a finite energy density. In that case, the more collectors, the more energy collected, for dispersal as work.

15. For a discussion, see Y. Aharonov and D. Bohm, 1959.

16. Nikola Tesla, "The True Wireless," Electrical Experimenter, May 1919, p. 87.

17. The power in the load is always the time rate of dissipation of energy that has just been freely collected by the load for dissipation.

18. One can foresee a day in the not too distant future when any power company continuing to do such an unthinkable thing will have a class action suit brought against it by its customers!

19. T. E. Bearden, "Mechanism for Long-Term Cumulative Biological Effects of EM Fields and Radiation," March 1993 (in preparation).

20. Precisely analogous to a heat pump's operation - which as is well-known can readily be "over unity" in its efficiency. The maximum efficiency of the heat pump is about 8.22. E.g., see David Halliday and Robert Resnick, Fundamentals of Physics, 3rd Edition Extended, John Wiley and Sons, New York, 1988, Volume 1, p. 510-519. Good heat pumps normally have about 4.0 efficiency.

21. External power in an electric circuit refers to the dissipation rate (in the circuit's external load) of the potential gradients on the activated/potentialized electrons. Internal power refers to the dissipation rate in the circuit's bipolarity source.

22. We call strong attention to T.W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," Annales de la Fondation Louis de Broglie, 16(1), No. 1, 1991, p. 23-41. In this important paper, Barrett shows that a higher topology EM, such as quaternion EM, allows many things to be accomplished with circuitry that are not apparent to a conventional vector or tensor analysis of that circuitry. He also shows the Nikola Tesla's circuits accomplished this higher topological functioning.

23. It is easy to test this. Connect several different wires to a single source of potential gradient. With respect to ground, the end of each one of those wires has the same potential gradient as does the original source with respect to ground. If you connect 10 wires to a single "100-volt" potential gradient source, you will have ten 100-volt potential gradients appear. You can use

each of these ten potential gradients as a primary source. From each of these new primary sources, you can branch ten more, and now have a hundred potential gradient sources. You can treat each of these hundred new sources now as a primary source. To each one, you can add a switcher, collector, and external load, and drive all 100 loads. Or instead, you can put ten switcher/collector/external load circuits with each of the hundred new primary sources, and power all 1,000 external loads. Energy/potential is free from any source, so long as you do not demand power from the same source.

24. Per Whittaker and Ziolkowski, this VPF exchange -- from consideration of its wave aspects -  
- consists of a harmonic series of bidirectional waves.

25. We are easily permitted to have free energy and violate the "local energy conservation law for a closed system." This is because the system is not closed, and so instead we must apply local energy conservation for an *open* system with a hidden source. In any given time interval, the energy taken (scattered) from the system as external work cannot exceed the sum of the unscattered trapped energy that was in the system initially and the unscattered energy that flowed into the system during that time interval.

26. You can actually do away with the separate collector, and utilize the doped copper DSC material itself as the collector. However, you will not be able to collect nearly so much energy in each collection cycle, for dissipating in the load in the subsequent work cycle.

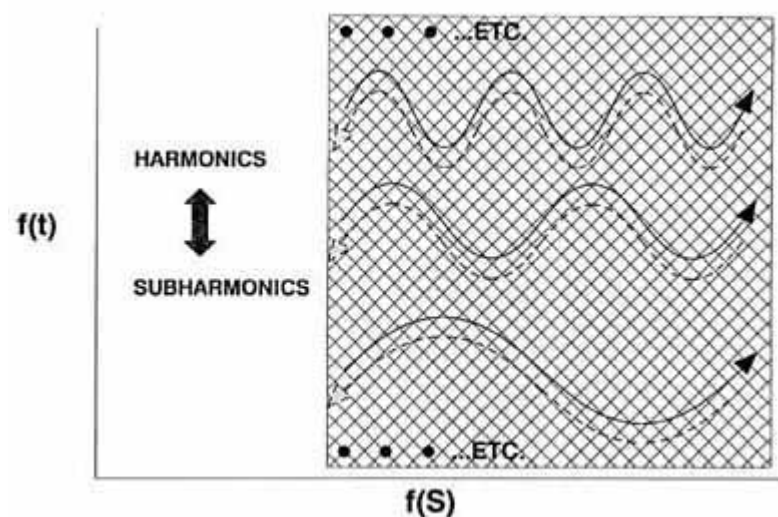


Figure 1a. Internal wave structure of the scalar potential.

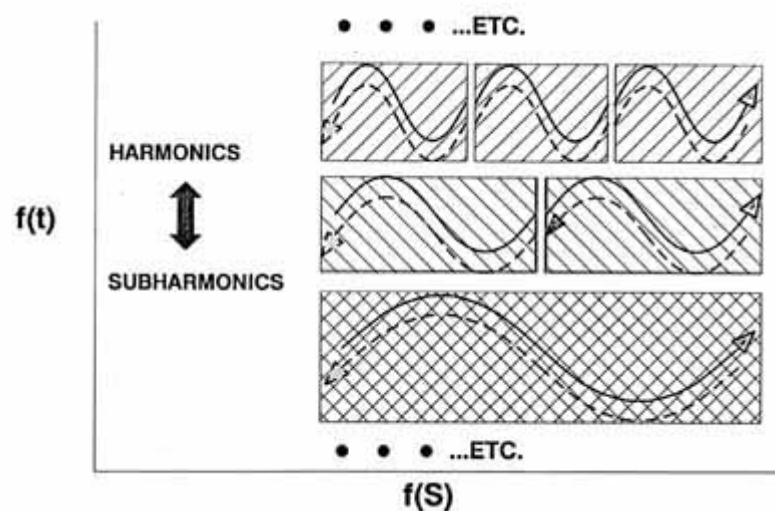
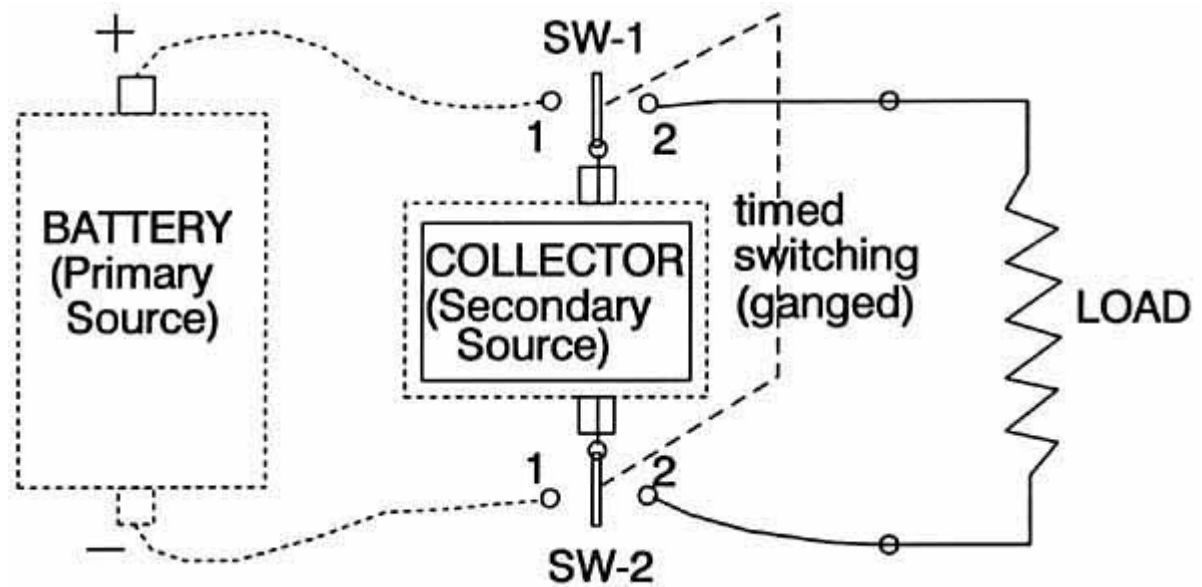


Figure 1b. Internal wave structure of the scalar potential (end).



Nondissipative components are shown by dotted lines.

Dissipative components are shown by solid lines.

Figure 2. The secret of extracting and using free energy.

[Additional Comments - 12 March 1993](#)

[Update - 5 February 1994](#)

[Update - 13 May 1994](#)

## ADDITIONAL COMMENT:

March 12, 1993

The present classical CEM model prescribes closed, energy-conservative type systems. If any electrical device works totally according to the accepted CEM model, it cannot and will not ever produce overunity. Simply put, you have excluded any hidden EM source that is freely replenished, and you have assumed continual killing of all energy input sources utilized. On the other hand, if one takes the view that the overunity electrical machines are possible after all, then -- *whether one is consciously aware of it or not* -- one has implied that classical CEM must somehow be substantially flawed. If it's flawed, then -- being a model -- some of its primary assumptions (postulates) and/or fundamental definitions must be in error. The proper place to go after "free electrical energy" is to rigorously examine CEM, over and over, until flaws are uncovered which allow a hidden, freely replenished source of input energy. In other words, one must find a way to "open" the electrical system to an inflow of energy from this source, without closing off the source. Until one finds such an "extension" of CEM, one has no model or concept which can reasonably be expected to provide overunity electrical energy output. Note also that, while the majority of the EM circuitry of an electrical overunity machine may obey CEM, at least one section -- where the source is freely tapped and the excess energy extracted -- must violate CEM.

I have spent many arduous years in this very process, right or wrong. The bottom line of my search is this: the only verified (by Whittaker and Ziolkowski) (WZ) "freely replenished river" of EM energy, that can act as the required "free energy" source for input to the would-be overunity electrical system, is the *potential*. But to understand the potential, completely new definitions are required for many entities, among them being energy, electrical charge, electrostatic scalar potential, voltage, etc. The present so-called "definitions" of these entities in CEM are either non-existent, entirely wrong, or quite unsatisfactory.

So far, the search has uncovered two major ways to tap the continually-replenished EM energy in the scalar EM potential:

(1) use of the inner WZ internal biwave structure of the potential as pump waves on/to a nonlinear material (such as the atomic nucleus), so that the nucleus becomes a pumped phase conjugate mirror. Then, by normal phase conjugate optical theory, simply inputting a small signal wave will produce an amplified phase conjugate replica (PCR) wave emitted from the mirror material, and this PCR will precisely backtrack the original input signal wave's path (see the *distortion correction theorem*) back out of the nucleus, out of the atom, and into the external circuit. There, the amplified PCR wave can be "filtered off" and sent to the external load, to power the load. The Floyd Sweet vacuum triode works precisely by this mechanism. Note particularly that Barrett has shown that higher topology EM (such as the original quaternion EM theory) can accomplish such "optical functioning" without the use of optical materials. To do Sweet's vacuum triode type process is thus theoretically possible with electrical circuitry alone, but one must have more than the current understanding of CEM, as Barrett pointed out. In other words, one can "open" any 4-space system by adding hyperspace (or subspace, if one insists on retaining Minkowski 4-space). One can thus have a hyperspatial source. Indeed, Ziolkowski and others have already pointed out that the WZ type decomposition of the scalar potential is essentially equivalent to having *complex sources*.

(2) The second way is to "trap the electron gas electrons" in a separate collector, feed "current-free potential" to the collector from a primary battery or other source of potential, and collect a bunch of excess energy (potential) in the collector's "penned up free electron 'horses'" waiting to carry the excess energy to the load and dissipate it there, once they have been released. Then, one switches the primary potential source away from the collector, while the "energy-loaded horses" are still trapped and straining at the bit, so that no work can be done -- by those agitated horses when they stampede out of there -- on the internal resistance of the primary

source, to destroy or reduce it. In the same switching action, the collector with its "snorting but still trapped electron horses" is switched across the load to form a totally separate circuit with it, having nothing at all to do with the original primary source of potential. Then, the agitated horses are released, and thunder out through the load, scattering their riders (excess energy) in all directions in the load, producing work/heat and powering the load. They will also charge on around to the reverse side of the collector, and kill its charge separation (kill its potential) as well, just as does any ordinary circuit.

The major disadvantage of method 1, as we presently have seen it done (however, check Barrett's demonstration that Tesla's patented circuitry is capable of doing it by circuitry alone), is that *time-reversed* electrical energy is produced. So Method 1 has some serious drawbacks. "Time-reversed energy stuff", which should stay in the atomic nucleus as Newtonian 3rd law reactions and 3rd-law energy exchanges, is dragged out. Unusual effects on biological systems can occur. Antigravity effects can occur. Other hidden processes in the universes, that affect the atomic nucleus, can be gated into the external circuitry, causing disaster. Monopoles can be deposited in the magnets, causing them to explode like hand grenades. Most of the new "massive time-reverse energy" phenomenology is still unknown. One cannot at this stage of ignorance adequately guarantee human safety. I presently don't see just how this kind of energy can pass an Underwriter Laboratories' testing and certification, until a lot more exhaustive work is done to understand the new phenomenology.

Method 2, however, yields ordinary, garden-variety, positive-time electrical energy. The method presented in the paper is my own discovery. No unusual time-reversed phenomena are involved. It would appear to be eminently practical to produce and certify power units based on Method 2. The phenomenology and risks are the same as for ordinary, time-forward power systems.

Method 2 has another unique characteristic: as a system, *all the subsystems are already in the literature and validated. They have just not previously been put together in this fashion.* So development of the system really represents an "integration" problem only, after one first does a little development of a proper degenerate semiconductor material (DSM). In other words, one first develops (and tests) the exact doping materials and percentage, to get a DSM material that is still a good conductor but has a relaxation time of -- say -- one tenth of a millisecond. One builds the wires from the battery to the collector out of this new DSM material. If one uses a capacitor for the collector, the plates must be made out of the new DSM material, not out of normal "pure conductor" material. Then one develops a switcher that switches in one tenth (or less) the relaxation time of the DSM, or in this case in one hundredth of a millisecond. That switching time, of course, is easy for any decent electronic technician or electronic engineer. One also develops a timing circuit that will (1) sense the status of the discharge of the collector energy through the load, and (2) trigger the switching at the correct times so that a smooth two-cycle (collect, discharge) process results. Note that the lengths of cycle one and cycle two are not necessarily equal at all. One may use multiple collectors/loads simultaneously, cascaded collectors/loads, etc. Hundreds of variations are possible and feasible.

It is not possible to do anything with this discovery in a normal manner. I would dearly like to be economically independent, so I could work full time in my efforts on free energy, antigravity, extended EM healing, cancer, etc. Many orthodox scientists will also fiercely resist this upstart notion of "overunity" electrical machines to the bitter end. When powerful economic interests realize one has such thing *for real*, one is certainly going to be stopped, jailed, or killed, or he may just "mysteriously vanish" and never be seen again.

So I just freely released and distributed my discovery of method 2, in the paper "The Final Secret of Free Energy". It is deliberately targeted toward technicians, junior engineers, and educated laymen. (The principles and definitions raised, however, can be debated to the nth degree by knowledgeable foundation scientists). The paper has already been distributed

worldwide. Now the *principles and definitions* are available to everyone. If they are in error, shortly that will be proven in spades. If they are correct, that will also be established shortly.

Anyone who wishes can develop and patent a particular application. There's no longer any way to stop this information from being disseminated and utilized. I hope that a flurry of development and patenting activity will result around the world. Get cheap, clean electrical energy to everyone. Bring on the electric auto, clean up the noxious auto exhausts, get rid of giant oil spills, and clean up the biosphere.

Tom Bearden



# Additional Information On *The Final Secret of Free Energy*

Update 15 February 1994  
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## Introduction

My associates and I have filed the first patent application on two electrical overunity processes and devices; one similar to what is outlined in *The Final Secret of Free Energy* [[Ref 1](#)] and an additional variation utilizing, as collectors, standard step-charged capacitors rather than degenerate semiconductor materials. In 60 to 90 days, we will have a very enlightening paper (more likely a book) ready on that. We also plan to file several more extremely fundamental overunity patent applications from additional phenomena and mechanisms that we have uncovered.

In this paper, it is assumed that the reader is familiar with the content of *The Final Secret of Free Energy*. Figure 1 shows the invention schematically, and we briefly summarize it as follows:

## Summary of the Invention

A method and apparatus for extracting bidirectional EM wave energy from the vacuum through the scalar potential gradient across the terminals of an electrical source, collecting the excess energy in a collector without entropy, then separately discharging the collected energy through a load to perform work, without sending the load current back through the primary source against its potential gradient; i.e., against its back emf. Removing the load current from the source thereby substantially reduces the production of work inside the source to dissipate its bipolarity; said internal dissipative work being well-known to be the cause of exhaustion of the source's ability to continue to furnish emf to the external circuit. By reduction of its internal dissipation, the source is enabled to furnish more energy for dissipation in the external load than is utilized to dissipate the source internally. Hence the source is enabled to operate with an overunity operational efficiency. The system permissibly operates as an "open" system, and extracts and utilizes excess EM energy from a free-flowing external source (the flux exchange between the surrounding vacuum and the bipolarity of the source), hence it can operate at an efficiency greater than unity without violation of the laws of physics, in a manner analogous to but entirely different from a heat pump. In this invention, it is not the purpose of the primary source to furnish current and dissipative power to the external circuit. The bipolarity of the source is utilized primarily as a dipole antenna to receive the bidirectional EM wave energy flow from the vacuum, and direct it without entropy through a switching unit to the collector. Conduction electrons in the collector are temporarily restrained while being overpotentialized by the excess energy being collected upon them. The collector and its overpotentialized electrons are then switched away from the primary source, and connected across the load as a separate circuit and closed current loop. The electrons in the collector and their excess energy are then automatically released to flow as current discharge through the load, releasing their excess energy to perform useful work in the load. The collector is then switched away from the load and back across the primary source, and another collection cycle is initiated. Iteration of the collection and discharge cycles provides power to the load. Additional collection and smoothing capacitances for smoothing the iterations and furnishing steady power to the load may be added as desired. The invention violates the

closed circuit practice of powering loads, but does not violate the conservation of energy law, the second law of thermodynamics, or any of the other known laws of physics.

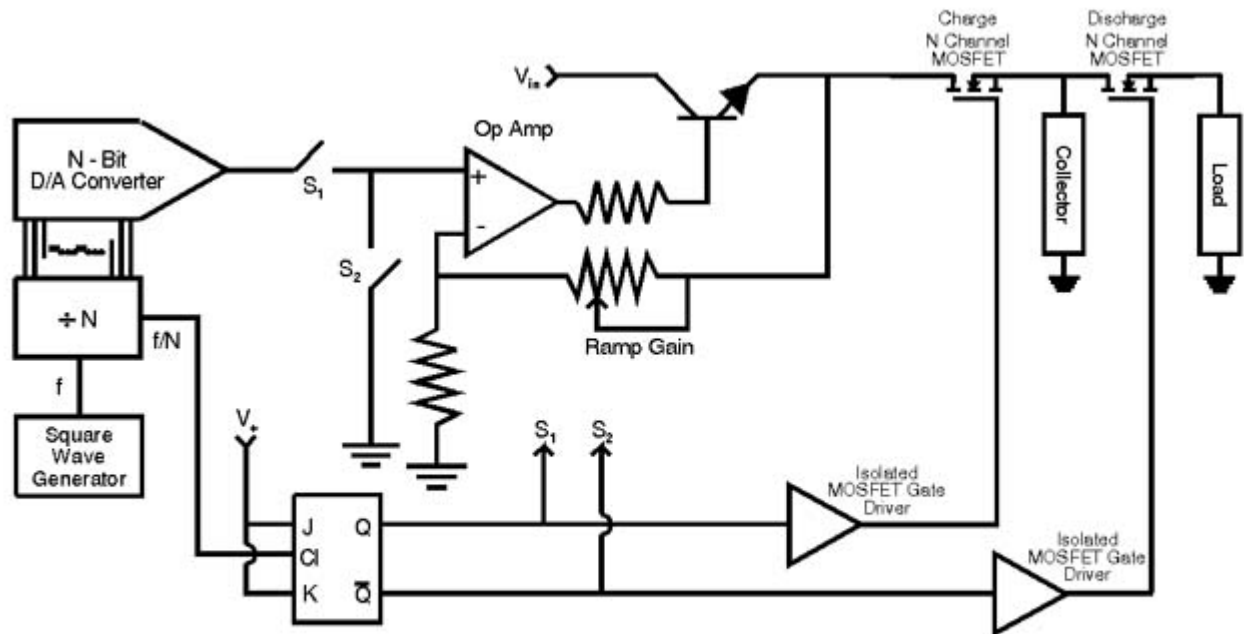


Figure 1A

**Figure 1a.** Type circuit utilized for ramp-up charging of a capacitor without work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

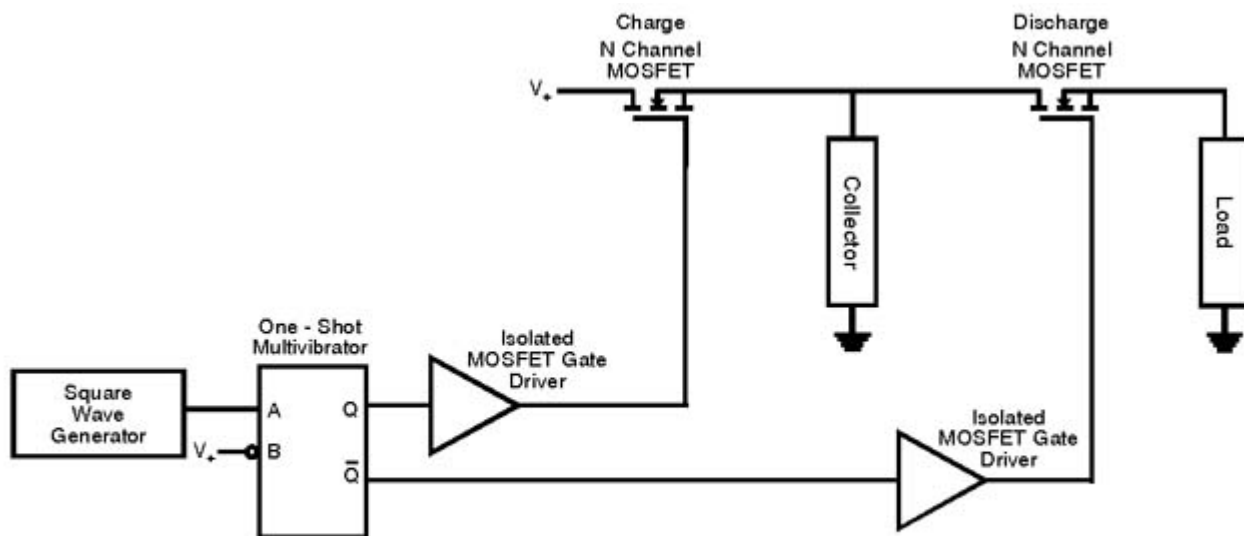


Figure 1B

**Figure 1b.** Type circuit for single pulse charging of a degenerative semiconductor collector without appreciable work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

## Use of Step-Charged Capacitor as the Collector

Fulfilling our search for a special material with the extended electron gas relaxation time for the collector, a material alloy composed of 98% aluminum and 2% iron is tentatively suggested. However, production of this alloy is particularly difficult, so we are still researching for a solution that is more easily manufactured.

Meanwhile, the necessity for using a special material for the collector has been bypassed by another procedure we have utilized. Rigorously one can use a *normal capacitor* as the collector, if one step-charges it in several hundred small incremental rectangular voltage steps (stair-step-charging). The proof that this can freely charge a capacitor with energy, without having to do appreciable work, is already known in the literature. You can charge the capacitor *without entropy* and essentially without drawing electron mass current. [[Ref 2](#),[Ref 3](#),[Ref 4](#),[Ref 5](#)]

Actually we consider the capacitor to be charged by *massless displacement current flow*, which for circuitry purposes we consider to be  $d\phi/dl$  -- a flow of pure potential (trapped EM energy) along a conductor or through the vacuum; i.e., under conditions where *mass displacement current flow* does not exist. [[Ref 6](#), [Ref 7](#)]

## Massless Displacement Current Is Freely Available From Any Source

The principle embodied in the invention is that one can extract all the free EM energy one wishes, from any electrical power source, as long as it is extracted via massless displacement current and not by *electron mass* flow current. [[Ref 8](#)] And one can freely collect this extracted energy from a source into an ordinary capacitor if one does it correctly, *because one can charge the capacitor via massless displacement current without expending any appreciable work inside the source to dissipate its dipolar separation of charges*.

## Every Electrical Source of Potential Is Already a Free Energy Source

We thus advance a revolutionary concept: all present power systems already utilize *free energy source-antennas*. However, the standard two-wire closed circuitry diabolically utilizes one-half the total free energy extracted by the source-antenna from the vacuum, to perform work inside the source-antenna to dissipate its dipolarity and hence to dissipate the *source-antenna (i.e. the receiver) itself*.

The source already acts as a "dipolar antenna" to continually receive "scalar potential" current  $d\phi/dl$  (massless displacement current) from the vacuum. [[Ref 9](#)] Previously scientists and engineers have simply ignored this special massless EM energy influx. For load-free (i.e., mass-current-free) conditions,  $(d\phi/dl)$  is continually received from the vacuum *by any dipole* (i.e., by any *dipolar source-as-an-antenna*), and the flowing energy is continually exchanged back and forth between the vacuum and the dipole.

This free energy exchange with the vacuum is also true of any two points in our circuit that possess an open-circuit voltage or potential difference between them. Two such points act as a dipole. Free energy dipolar antenna sources are everywhere; we just have to learn how to break the symmetry in their energy flux exchange with the vacuum, collect some of the freely flowing influx, and distribute that collected excess energy to an isolated load to *separately* power it.

In other words, we simply have to implement circuitry that operates analogous to the standard heat pump cycle.

# WHY PRESENT SYSTEMS HAVE COP < 1.0

Dissipative power inside source =  $V I_T$  and  $V I_T > F_L$

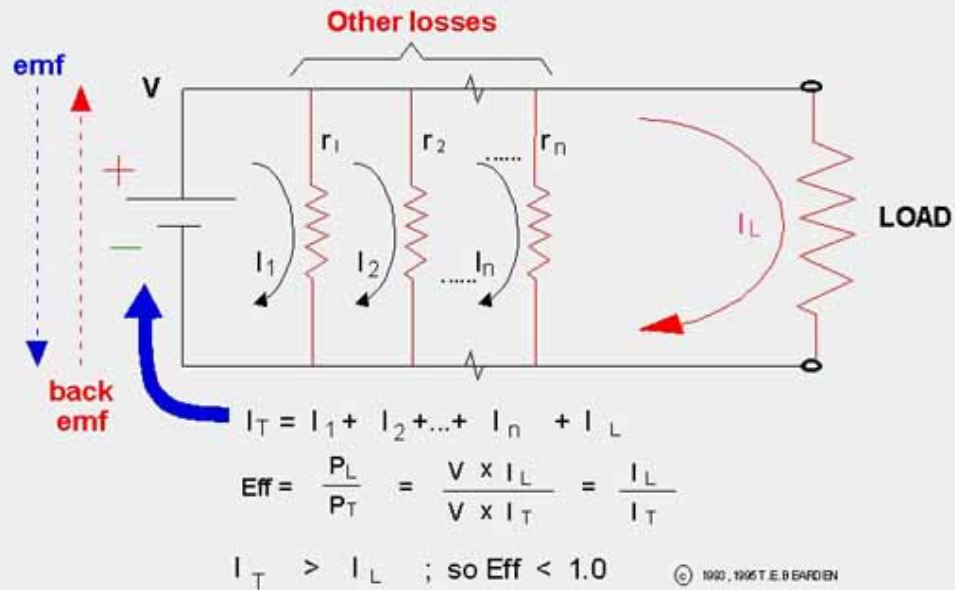


Figure 2. Why present electrical power systems have underunity operational efficiency.

## Conventional 2-Wire Closed Circuit Operation

In the conventional 2-wire system a load is added to the source-antenna, allowing circulation of electron current in a closed circuit through the load and then through the ground return line back to and through the dipolar source-antenna. The only useful reasons for this "closed circulation" of the electrons are (1) it is simple, *easy*, habitual, and accepted, (2) all our components, instruments, and methodologies are developed in accordance with this usage, (3) one uses the electrons as a *working material fluid* to receive, transport, and discharge excess EM energy, and (4) forcing the electrons back through the back emf *reloads* the spent electrons again with excess EM energy in the form of little  $\nabla\phi$ 's (excess trapped energy density) upon each recycled electron.

Some of the excess  $\nabla\phi$  collected upon the electrons is expended in the load as useful work, but one half of the total is expended in driving the spent (without excess  $\nabla\phi$ ) Consequently all conventional 2-wire circuits, which return *all external electron-flow current loops back through the source*, are always underunity devices, as is shown in Figure 2. Eerily these conventional sources are already free energy devices, which are unwittingly attached to circuitry specifically designed to utilize part of their freely received energy to deplete or destroy themselves, i.e., they are already *open systems receiving free energy from the vacuum, but they are hooked up and designed in a suicidal manner so as to use at least half of that freely extracted energy to re-close the system and shut off the influx of free energy*. Since at least some of the remaining half of the energy is lost in inefficiencies, frictional losses, etc., less than half the total free energy goes to the load. So there is always less useful work being done in the load than the destructive work being done inside the free-energy source-antenna to destroy it.

## Operational Efficiency

We define operational efficiency Alpha as the average power expended in the load to power it, divided by the average power expended inside the source to dissipate its dipolarity. If Alpha < 1, one has to externally furnish energy to do restorative work upon

the source to replace or offset that amount of destruction being done inside the source, if one wishes the source to continue to operate as an energy-receiving antenna. If  $\text{Alpha} > 1$ , then if the additional losses are minimal, the device can conceivably run itself while furnishing some energy to a load to produce useful work.

## **We Must Excise the Suicidal Closed Circuit To Achieve Overunity**

There is no mysticism in the overunity electrical device. The device is an open system that extracts excess energy from the vacuum, collects it, and transports it to the load to separately power the load. It is simply analogous to the standard heat pump cycle. It is also directly analogous to presently operating overunity systems such as windmills, waterwheels, solar cell arrays, and hydraulic turbines in a dam installation. All that we have done is to eliminate or dramatically reduce the standard cancerous mistake in conventional electrical power systems wherein much of the excess energy freely extracted from the vacuum by the already-overunity electrical source is then utilized to destroy the source's energy reception ability!

As we stated, in the conventional electrical device and circuitry, more destructive work is always done inside the source than is done usefully in the external load. Hence the conventional operational efficiency is always underunity.

### **Legitimate Overunity Systems Comply With Well-Known Requirements**

There are many alternative and well-known permissible free energy systems that operate at overunity operational efficiency: solar cells, windmills, hydraulic turbines, heat pumps, and water wheels, to name a few. All of these are open systems, receiving an influx of free energy from a natural energy flow, and collecting and gating some of that energy to be dissipated in a load to do useful work. All of them are permissible overunity devices, since (1) they are open systems, (2) they constantly receive a free energy influx from an external source, (3) they extract and collect some of this energy without dissipation, (4) they dissipate this collected energy in a load, and (5) the discharge process is totally separated and isolated from the "collection-from-the-source" process.

### **No Legitimate Overunity System Is Intentionally Made Self-Destructive**

Not a single one of these open overunity systems foolishly uses part of its freely extracted and collected energy to re-close the system and shut off its influx of free energy flow! What engineer would build a solar array such that, the moment the current started to flow, it powered a shutter arrangement to gradually close and shield off the solar array from the sun? Who would build a windmill so that, whenever the angled-blade assembly rotated in the wind to furnish power, a gearing feedback assembly also slowly caused the individual blades to rotate into a position parallel to the wind, thus stopping the windmill?

Yet this is precisely what the conventional electrical power system does with its external circuit. It deliberately utilizes half of the freely extracted energy to re-close the system and shut off the free energy flow between the vacuum and the source-antenna, by destroying the receiver-antenna!

However, this "suicide circuit" practice is guaranteed to keep the power meter on your home or business, and to keep the meter on the gas pump for fueling your automobile. Perhaps one may be forgiven for suspecting that, at the deepest levels of financial control,

this may be the real purpose in seeing that the existing interpretation of classical EM stays "as is."

## **All Electrical Power Sources Are Already Free Energy Receiving Antennas**

All conventional electrical power systems already contain fully functional free energy systems in their source component. Each conventionally designed system is, however, deliberately suicidal, since part of the system's own energy is utilized to work against itself and destroy itself. This is primarily due to the preoccupation of engineers with power and work. They do not consider the source as an energy source, but as a power source. Power being the time-rate of performing work, and work being the dissipation of energy, they are thus naturally conditioned to think of the "dissipation of the source" as its natural functioning.

In fact, hardly a single one of them is aware that EM energy itself is a free-flowing process. Only a finite collector possesses a finite collection of EM energy. In nature, the potential gradients of all dipoles are already rivers of free-flowing EM energy exchange with those dipoles, where the energy density is freely furnished and is essentially free for the taking. It is mind-boggling that we have all been conditioned to extract this free energy furnished by nature and the creator, but to always utilize half of the extracted energy to destroy the receiver-antenna and thus strangle the flow!

In our work, we simply have excised this "self-destructive" cancer and reworked the circuitry so that only a minimal amount of the freely extracted energy is utilized for internal destruction of the source-antenna.

## **Thermodynamics and Open Overunity Systems Not In Equilibrium**

In our approach we have an open system during every collection cycle, with an external source of energy and a continual energy influx. We have deliberately broken the local symmetry of the system's energy exchange with the vacuum, by spatially and temporally separating the energy collection and energy discharge phases. Overunity operational efficiency is permissible for such a system without violation of any of the laws of nature. Some of the influx of excess energy from the vacuum into the dipolar source antenna is transported without loss to the collector and collected. The collected energy in the collector is then separately discharged through the load, without any of it being discharged back inside the source-antenna. Note that we have broken local energy flow equilibrium but not global energy flow equilibrium.

The second law of thermodynamics, e.g., does not even apply to such an open system not in equilibrium. Classical thermodynamics cannot even compute the entropy of an open system not in thermodynamic equilibrium, as is well-known to thermodynamicists. [[Ref 10](#)]

What classical thermodynamics does have to say, is that such an open system must contain excess energy when compared to the closed system in equilibrium, because the closed system in equilibrium is in the maximum entropy condition. [[Ref 11](#)] Global conservation of energy is not violated, just as it is not violated in a windmill or in a heat pump, which are similar open systems. Local conservation of energy (which applies only to a closed system or to a system in total equilibrium) does not apply because the system is open and not in equilibrium.

## **Permissible Electrical Overunity Is Not Perpetual Motion**



An open system out of equilibrium need not conform to (1) the local (closed system, equilibrium conditions) conservation of energy nor to (2) the second law of thermodynamics (which assumes equilibrium conditions). It must and does conform to the global conservation of energy, just as does a waterwheel or windmill. We strongly stress that the overunity electrical device is not a "perpetuum mobile." [\[Ref 12\]](#) The electrical operations and systems we propose are perfectly permissible by the known laws of physics and do not violate any of them. We propose a permissible series of overunity electrical systems.

## The Heat Pump Analogy

In one way of viewing it, all we have done is utilize the potential as a more modern type of quantum mechanical fluid having hidden bidirectional flowing EM energy. [\[Ref 13\]](#), [Ref 14](#), [Ref 15](#), [Ref 16](#) QM already certifies that the potentials, not the force fields, are the primary causes of all EM phenomena. Contrary to classical EM theory, the force fields are effects in, on, and of the charged particles themselves. Consequently, if the potentials are the primary causes of all EM phenomena, then for free energy to perform work (free causes to collect and generate desired effects) we must turn to the potentials.

We have utilized a hookup and switching arrangement so that energy-free collection is totally separated from collected energy discharge in the load. In short, we have done what a normal heat pump does, when it uses the air with its thermal energy as a working energy-containing fluid. Consequently, overunity operational efficiency of analogous electrical devices is perfectly permissible, and not prohibited by the known laws of physics.

## An Electrical Power Source Is a Dipolar Antenna For Free Reception of Energy

An electrical power source is in fact only a dipolar antenna for reception of potential (hidden bidirectional Whittaker/Ziolkowski waves). All the current you run back through the back emf of the source, to perform dissipative work inside it, is something you yourself are doing to the source. It is not a priori a characteristic of the source!

If no work is done inside the source's internal bipolar separation of charges (i.e., if no electron or ion current is forced back up from the ground return line against the source-antenna's potential and therefore against its back emf), then the dipolar source-antenna will last essentially forever, or until something corrodes or breaks mechanically.

The flow exchange of energy between the vacuum and the dipolar source-antenna is freely driven by all the charges of the universe, in accordance with Puthoff's cosmological feedback loop. [\[Ref 17\]](#)

## Massless Displacement Current

Technically one is using massless displacement current to charge the capacitor, rather than electron mass flow current. It is real energy flow nonetheless; just in work-free, dissipation-free form. As is well-known, one plate of a capacitor already charges the other plate by just this very massless displacement current, transporting real EM energy across the gap between the plates in the process. The electrons themselves do not cross the gap.

Displacement current is already well-known to be "free" energy transport without any dissipation as power and work. By drawing massless displacement current only from the source-antenna instead of electron flow current, you can draw work-free, dissipation-free energy as long as you wish, as often as you wish, and as much as you wish, without ever



dissipating the source-antenna. You just have to collect it onto some trapped electrons or other charges, such as in a capacitor's plates, then switch the collected energy (charged capacitor) separately across a load, in a separate discharge circuit, to discharge through the load as work.

The real trick is to prevent the electrons in the circuit from moving and providing mass "energy dissipation" current inside the source during the collection process. In the original paper, we explained that this could be done by using as a collector a degenerate semiconductor material, with extended electron gas relaxation time. In this paper we have explained how this can be done by step-charging an ordinary capacitor as a collector. We have also included specific references proving (both experimentally and theoretically) that this is correct. With the requirement for special materials removed, there is no reason that a competent researcher cannot develop a step-charged capacitor device to prove it experimentally for himself or herself.

## **Requirement: Proof of Principle and Independent Test and Certification**

My associates and I are proceeding as rapidly as possible toward full-up "proof-of-principle" circuits for open release and certification or falsification by the scientific community and engineers at large. Soon we also expect to release to other researchers information on the kinds of new electrical phenomenology one meets in true overunity electrical devices. These are not in the textbook, at least with respect to electrical power systems. We give some indication of these phenomena below:

### **New Circuit Phenomena Must Be Mastered**

One meets unusual electrical phenomena in attempting to perform overunity electrical operations. For overunity, a priori one must "slip excess potential" through the circuit essentially without losses. That is, one must deliberately pass massless displacement currents through the circuit and at least through some of its components.

Solid-state switching components in particular exhibit unusual phenomena, to say the least, when excess potential is introduced into and through all their internal components inside modern semiconductors. An ordinary MOSFET, e.g., may have 25,000 separate internal components. It is as if someone crammed the entire electronic parts store inside it. Simple switches these semiconductors are not, when exposed to appreciable massless displacement current.

When one "slips in" some pure potential, by SWZ decomposition one has also slipped in some bidirectional EM pump waves. The nonlinear semiconductor materials will function as phase conjugate mirrors when suitably pumped, including at non-optical frequencies. Consequently pumped phase conjugate replicas, self-targeting, formation of quantum potentials, and modular variable effects sometimes begin to evidence. We will address and explain some of these effects in a future paper. For now, we simply state that they occur, and there is a host of extra phenomenology the experimenter may encounter.

However, an iron rule for the experimenter is that, for odd circuit behavior, first exhaust all "normal" causes before turning to the extraordinary causes. One will save oneself a great deal of grief by applying this Occam's razor.

Also in deliberately utilizing displacement current, one is actually employing an expanded, higher topology EM with additional degrees of freedom, similar to that pointed out by Barrett. [\[Ref 18\]](#) Consequently one encounters a host of additional higher topology EM

phenomenology. In particular one encounters nonlinear optical (NLO) functioning of the semiconductors at any and all frequencies, not just in optical bands.

## Overunity Electrical Devices Are Permissible By The Laws of Physics

The overunity electrical energy system is permissible by the laws of physics and is not in any manner perpetual motion. It simply extracts excess EM energy from an ubiquitous source, through a dipole as a receiver, and collects that excess energy, conducts it to the load, and separately dissipates it in the load to power the load, without using any of the collected energy to perform work inside the source to dissipate the source-antenna. It is directly analogous to a heat pump, which is well-known to perform at overunity operational efficiency under nominal conditions.

### In Conclusion

Primarily my associates and I believe we have corrected an ubiquitous error made in present power systems that prevents these systems from realizing their already-inherent overunity operational efficiency. We also firmly believe that the permissible electrical overunity device is an idea whose time has finally come.

### Notes and References

1. [T. E. Bearden, "The Final Secret of Free Energy,"](#) distributed over the Internet, Feb. 9, 1993. The paper was also published in Magnets, 7(5), pp. 4-26 (1993); in Explore!, 4(3/4), pp. 112-126 (1993), and in several other media.
2. For proof that you can charge an ordinary capacitor almost without entropy, see I. Fundaun, C. Reese, and H. H. Soonpaa, "Charging a Capacitor," American Journal of Physics, 60(11), pp. 1047-1048 (1992). A capacitor can be step-charged in small steps to dramatically reduce the entropy required to charge it. In the limit, a theoretically perfect capacitor can be fully charged without any electrical current or work at all, i.e., you can simply transport the excess energy density (the potential gradient) of the open circuit voltage of the source to the collector, and couple that  $\nabla\phi$  to the electrons trapped in the capacitor plates, without electric current from or through the source.
3. M. G. Calkin and D. Kiang, "Entropy Change and Reversibility," American Journal of Physics, 51(1), pp. 78-79 (1983).
4. F. Heinrich, "Entropy Change When Charging a Capacitor: A Demonstration Experiment," American Journal of Physics, 54(8), pp. 742-744 (1986).
5. V. K. Gupta, Gauri Shanker, and N.K. Sharma, "Reversibility and Step Processes: An Experiment for the Undergraduate Laboratory," American Journal of Physics, 52(10), pp. 945-947 (1984).
6. In most texts the treatment of displacement current is far from adequate. A better treatment than most is given by John D. Krauss, Electromagnetics, Fourth Edition, McGraw-Hill, New York, pp. 437-439, 547-549 (1992). Additional useful insight can be gained from David J. Griffiths, Introduction To Electrodynamics, Second Edition, Prentice-Hall, Englewood Cliffs, New Jersey, pp. 304-308 (1989). Problem 7.51 on p. 335 is also of direct interest, as is particularly the comment by Griffiths below the problem. Additional insight can be gained from David Halliday and Robert Resnick, with assistance by John Merrill, Fundamentals of Physics, Extended Third Edition (1988), John Wiley & Sons, New York, vol. 2, Article 37-4: Displacement Current, pp. 836-837, 839-841. The standard notion is to (1) retain the continuity of current, thus modifying and salvaging Ampere's law, (2) the displacement current is non-physical, i.e., it does not involve the transfer of charged mass, (3) focus primarily upon magnetostatics as to the results achievable by the displacement current, (4) retain the notion of  $\nabla\phi$  as  $\mathbf{E}$ , a force field, thereby

focusing the notion of displacement current upon the change of the E field without the flow of charged mass, and (5) retain the confusion between electrical charge and charged mass that is inherent in the terms "charge", "current", etc. On p. 836 Halliday and Resnick point out that the displacement current is not derived per se, but is a "fit" based upon symmetry arguments, and it must stand or fall simply on whether or not its predictions agree with experiment. On the same page the displacement current is taken to be a linear function of  $d\phi/dt$ . For flow along a circuit where there is no electron mass current, it seems appropriate to replace  $d\phi/dt$  by  $d\phi/dl$ . It is also strongly indicated that one should clearly distinguish between charged mass current flow and the flow of massless charge, which is the approach we have taken.

A final indication of the way conventional scientists tend to regard displacement current is given by Martin A. Plonus, Applied Electromagnetics, McGraw-Hill, New York, pp. 446-448 (1978). Here Plonus uses the prevailing notion of the E field being altered by the flow of massless displacement current. As can be seen, the displacement current is relegated almost to a curiosity of capacitors, and not really too essential except just to "balance the books" and retain Ampere's current continuity.

We now wish to point out something very subtle but very rigorous. CEM erroneously uses  $E = -\nabla\phi$  to equate a mass-free potential gradient with a mass-containing force field. This "E-field" only exists at a point when there is a point-coulomb of electrical charged mass at the point. The real version of this equation should be  $E = -[(\nabla\phi) \bullet q]/|q|$ , where  $\nabla\phi$  is the potential gradient coupled directly to the charged point-mass at the point,  $q$  is the number of coulombs of charged mass at the point,  $q/|q|$  is one coulomb of charged mass, and  $E$  now is properly the force on and of each coulomb of the collected charged mass at the point.

Viewed in this manner, one can now see that the E field may be altered by flow of additional charged mass  $q$ , or by flow of massless additional  $\nabla\phi$ , or both. This is now in agreement with the manner in which it is approached in CEM, but more rigorous. Essentially it states we may increase the total "charge" (potential) at a point by either (1) moving in additional charged masses by use of a conventional current, or (2) moving in additional massless charge (potential) without any additional change in mass, or (3) a combination of the above.

However, let us apply this to a single charged particle or to a fixed number of them. No one seems to have noticed that the notion of altering the E-field of the collected point- charges at a point via method #2, i.e. by a flow of massless displacement current onto the fundamental charged particles themselves, a priori requires the electrical charge of each fundamental particle to change. Hence it **falsifies the notion of quantization of charge**.

Also, no one seems to have noticed the electric power implications: if it is known that one can charge a capacitor purely by displacement current, then one can charge up the capacitor with energy, without any dissipation of the source, because only charged mass current through the back emf of the source does that. So one can then disconnect the charged capacitor and separately connect it in a closed circuit with a load, to discharge through the load and furnish free work in the load (free in the sense that no dissipation of the primary source occurred in either the collection of the energy or in discharge of the collected energy through the load as useful work). Free energy, overunity electrical devices, etc. should then be readily apparent and permissible, from the known nature of displacement current and capacitors alone.

7. Maxwell assumed a material ether, which was assumed to be a thin material fluid filling all space. Hence force (which must have mass as a component due to its definition  $F = d(mv)/dt$ ) could be modeled as existing in the Maxwellian ether, for there was already thin matter present everywhere. Hence in Maxwell's EM the incorrect notion resulted that force fields existed in the vacuum. Oliver Heaviside continued this erroneous assumption, since in fact he hated the potentials, regarded them as mystical, and stated that they should be "...murdered from the theory." Also, electricity was thought to be a similar thin material fluid. So the material electric fluid could and did flow through the fluid vacuum also, giving the notion of the material electric flux density for  $D$ . Consequently, the units of  $D$  are coulombs (charged mass rate of flow) per square meter. Rigorously, that material  $D$  flux exists only on and of charged mass that moves; it cannot and does not exist in vacuum. Only potentials and potential gradients exist in vacuum. However, after Maxwell's formation of his theory, the Michelson-Morley experiment destroyed the material ether (not the ether per se, but its material nature). So electricians then simply proclaimed that they were no longer using the material ether, and that such did not exist! Not a single Maxwell/Heaviside equation was changed. The material ether is still very much assumed in classical EM (CEM) theory, and so the theory is accordingly very seriously flawed. Since CEM also has no adequate definition for either electric charge or the scalar potential, the problem is confounded.

To clarify this problem, one must separate the notion of electric charge from the notion of mass. The electrical charge of a charged mass is the virtual photon flux exchange between the surrounding vacuum and that mass. Since a virtual photon flux is just a scalar potential, the electron's massless electrical charge is simply its scalar potential. It can now be seen that, if we forcibly remove the notion of "mass" from  $D$  in the vacuum, or in a charged material medium where the charged masses cannot move, then the "material electric flux concept" portion of  $D$  turns into  $d\phi/dt$ , a change in the nonmaterial electric flux. However,  $D$  is a vector and hence has a "net flux" spatial directional aspect which  $d\phi/dt$  alone does not possess. It follows that the value of  $d\phi/dt$  at a spatial point actually represents the result of change of the value of  $\phi$  at that point, as a function of time. Thus a directional operator must first be invoked upon  $\phi$  at the point, to provide a direction for the spatial  $\phi$ -current after the  $d/dt$  operator is invoked. The appropriate operator to give directionality to  $\phi$  is  $\nabla$ , so that  $D$  in vacuum or in an electron-current-free charged medium becomes a function of  $d/dt(-\nabla\phi)$ . Conventionally, the use in the literature of  $E = -\nabla\phi$  immediately provides that  $d/dt(-\nabla\phi)$  at a point results in  $dE/dt$ , or the time rate of change of the E-field at that point. If no distinction is made between charged mass current flow and massless charge current flow, this would be true in either vacuum or material media. However, we wish to specifically distinguish between massive displacement current and massless displacement current. So we point out that the increase  $dE/dt$  in the magnitude of the E-field at, on, and of a charged particle at a point, can be due to either (1) the flow of mass current to build up the number of point coulombs at that given point, where each coulomb has a fixed massless charge (potential), or (2) the flow of massless current  $d/dt(-\nabla\phi)$  so as to alter the value of  $\phi$  at that point, evidenced by a fixed number of coulombs of charged particles, **each of which has altered its individual potential and therefore its individual massless electrical charge.**

So what "flows" when the charged masses are frozen or absent is simply a current of scalar potential, resulting in a change of the potential upon fixed point charges of  $d\phi/dt$ . This is what crosses between the plates of a capacitor, e.g., which is where the notion of "displacement current" originated in the first place. (See, e.g., Halliday and Resnick, 1988, *ibid.*, p. 836, Sample Problem 1, for expression of the displacement current as  $d\phi/dt$ , neglecting constants of proportionality). This is also

what flows when one connects multiple open circuit pairs of conductors to a source.

It remains to examine Maxwell's equation  $\nabla \cdot \mathbf{D} = \rho_v$ . If mass displacement current cannot flow, then there exists no divergence of the mass current portion of  $\mathbf{D}$ . However, massless displacement current can still flow, and there can exist divergence of that component. There are now three aspects to that equation: (1) the case in the vacuum, where there exists no physical  $\rho$  and hence no  $\rho_v$  as such because of the absence of mass, (2) the case in a material medium, which is the normal case already treated in the standard equation and need not be further addressed, and (3) the case in a material medium where, nonetheless, physical charged masses such as electrons cannot move, but massless charge currents may still move. Only cases 1 and 3 need to be addressed, and they have the same treatment.

We address the one dimensional case, which is sufficient for circuit current flow considerations. First we replace  $\mathbf{D}$  with  $(D\phi + D\rho)$ , where the first term is the massless displacement current and the second term is the massive displacement current. In other words, we account separately for charged mass flow and for massless charge flow. Similarly, we express  $\rho_v$  as two components, one massive and one massless, so that  $\rho_v = d/dl(\phi + m_v)$ . For case 1 and case 3 we make  $m_v = 0$  and  $D\rho = 0$ . For those cases, we have  $\nabla \cdot \mathbf{D} = \nabla \cdot D\phi = d\phi/dl$  (since current along a wire is a one-dimensional flow). We specifically note that  $\phi$ ,  $D\phi$ ,  $\nabla \cdot D\phi$ , and  $d\phi/dl$  are not necessarily conserved quantities, since  $\phi$  is mathematically decomposed into bidirectional EM waves, and is hence a freely flowing process. When symmetry is broken so that equilibrium conditions no longer exist, one or more of these quantities will not be locally conserved.

What has actually been done here is to open the classical EM model to the free exchange of massless EM energy that is always ongoing between any charged particle's mass and the vacuum. We then account separately for the flow of the energy exchange (of the massless charge flow) and the flow of the physical receiver/transmitters (i.e., for charged mass flow). Our switching arrangement to separate the collection and discharge cycles constitutes a permissible "Maxwell's Demon" which breaks symmetry, hence breaks equilibrium and opens the system as required. Since such a system can continually receive a free influx of energy from its external source, such a system can permissibly exhibit overunity operational efficiency without violating the laws of physics.

8. Displacement current is already known to be lossless transport of energy without entropy, i.e., without work. For a typical confirmation see Jed Z. Buchwald, From Maxwell to Microphysics, University of Chicago Press, Chicago and London, p. 44 (1985). Quoting: "...no energy transformation into heat occurs for displacement currents."
9. We strongly stress again that the scalar potential may be mathematically decomposed into a harmonic series of hidden bidirectional EM wave pairs. Each wave pair consists of an ordinary EM wave together with its superposed phase conjugate replica wave. Thus internally the scalar potential gradient across a source represents a bidirectional exchange of EM wave energy with the surrounding vacuum. See notes 13, 14, 15, and 16 below for references confirming the decomposition of the "fixed" potential into a dynamic flow process and energy exchange process.
10. For confirmation see Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, pp. 283-287 (1963). See particularly p. 283, which emphasizes that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. See p. 17 on the limitations of

a "natural law"; p. 213 and 215 for limitation of thermodynamic analysis to equilibrium states; and see p. 216 for definition of entropy. See p. 217 for the fact that the entropy for non-equilibrium conditions cannot be computed, and the entropy of a system not in equilibrium must be less than the entropy of the system in equilibrium, i.e., for a system to depart from equilibrium conditions, its entropy must decrease. Therefore its energy must increase. Thus the energy of an open system not in equilibrium must always be greater than the energy of the same system when it is closed and in equilibrium, since the equilibrium state is the state of maximum entropy.

11. Lindsay and Margenau, *ibid.*, p. 217.
12. The basic notion in the perpetual motion conundrum is that somehow a closed system in thermodynamic equilibrium could perpetually provide external energy to a load outside the system. Such a notion is an oxymoron; if the system is closed, no energy can escape or enter, hence the system could not furnish energy externally to power a load or even just to radiate away. My associates and I have not in any manner proposed such a system or entertained the notion that such might exist. But it is well-known that open systems not in thermodynamic equilibrium can freely extract energy from their environment and furnish energy to power a load, and that is precisely what we have proposed.
13. G. J. Stoney, "XLVIII. On a Supposed Proof of a Theorem in Wave-motion, To the Editors of the Philosophical Magazine," *Philosophical Magazine*, 5(43), pp. 368-373 (1897).
14. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, vol. 57, pp. 333-355 (1903). Whittaker mathematically decomposes the scalar potential into a bidirectional series of EM wave pairs in a harmonic sequence. Each wave pair consists of the wave and its phase conjugate. (We have pointed out elsewhere that such a wave pair is a standing electrogravitational wave and a standing wave in the curvature of local space-time). To see that all classical EM can be replaced by interference of two such scalar potentials (i.e., by the interference of their hidden multi-wave sets), see E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proceedings of the London Mathematical Society*, Series 2, vol. 1, pp. 367-372 (1904).
15. Richard W. Ziolkowski, "Localized Transmission of Electromagnetic Energy," *Physical Review A*, 39, p. 2005 (1989). For related material, see Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," *Journal of Mathematical Physics*, 26, pp. 861-863 (1985). See also Michael K. Tippet and Richard Ziolkowski, "A Bidirectional Wave Transformation of the Cold Plasma Equations," *Journal of Mathematical Physics*, 32(2), pp. 488-492 (1991).
16. C. W. Hsue, "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," *IEEE Microwave and Guided Wave Letters*, 3, pp. 82-84 (1993).
17. H. E. Puthoff, "Source of Vacuum Electromagnetic Zero-point Energy," *Physical Review A*, 40(9), pp. 4857-4862 (1989). Presents Puthoff's self-regenerating cosmological feedback cycle for the source of the vacuum EM zero-point energy.

Our comment: Over any macroscopic range, the vacuum fluctuations ( $\nabla\Phi$ 's) of the ZPE sum to a vector zero translational resultant. The individual ZPE components ( $\nabla\Phi$ 's), however, are still present and active, and their energies are present as well. That vector zero can thus be considered to be a gradient-free potential, or the vacuum potential, since it contains enormously dense, trapped EM energy. So the vacuum potential -- pure space-time (ST) itself -- contains enormously dense EM energy.

One can then apply the Stoney/Whittaker/Ziolkowski (SWZ) methodology to decompose this powerful vacuum potential, i.e., the vacuum, and in fact space-time (ST) itself, into an incredibly dense flux of EM energy. Space-time is revealed to be an incredibly powerful electrostatic scalar potential. The electrical charge (potential) of a charged particle is a small potential gradient in the ST potential, i.e., it is a slight alteration of the local ST potential. Via Puthoff's self-regenerative feedback cycle, the energy flowing in this potential is being exchanged between the local source and all the charges everywhere in the universe. This "potential gradient" or electrical charge itself can be decomposed via the SWZ approach, and becomes a bidirectional EM wave pair exchange of excess EM energy between the vacuum/ST and the charged particle's mass. The potential gradient between the ends of a dipole have similar decompositions, with the additional characteristic that the negatively charged end of the dipole receives the forward-time waves from the SWZ wave pairs, and the positively charged end receives the time-reversed waves.

Our final comment is that Cole and Puthoff have rigorously shown that, in theory, the vacuum EM energy can indeed be extracted. See Daniel C. Cole, and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," *Physical Review E*, 48(2), pp. 1562-1565 (1993).

18. T. W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), pp. 23-41 (1991). Barrett shows that a higher topology EM model (e.g., EM expressed in quaternions) allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. As an example, one may meet optical functioning without the presence of optical materials.



## LEGEND:

● = filled black dot (like scalar product) in original text  
 $\emptyset$  = Greek letter  $\emptyset$  for the Scalar Electrostatic Potential field  
 $\nabla$  = Greek letter Nabla (upside down triangle)  
 $|x|$  = Absolute value of x (only positive)  
 uf = microFarad

**PRACTICAL OVERUNITY ELECTRICAL DEVICES**

(C) T.E. Bearden  
 May 13, 1994

**Introduction**

Recently, my associates and I have filed a patent application on what we believe will at long last reveal the mechanisms for practical overunity electrical devices. It is my purpose in this paper to provide additional information augmenting my former two papers, (1) "The Final Secret of Free Energy," Feb. 1993, and (2) "Additional Information on the Final Secret of Free Energy," Feb. 1994. In this present paper, with the permission of my colleagues, I release the gist of our work on separation of electrical charge into two coupled components  $\emptyset \bullet (m)$ , where  $\emptyset \bullet$  represents the massless charge of the charged particle or mass,  $\bullet$  represents the fact that it is coupled or trying to couple to the special mass that makes up charged particles [i.e., the special kind of mass that will couple to the virtual photon flux density that is represented by the symbol  $\emptyset$ ], and  $m$  represents the inert mass component of the charged mass. Since not all masses will couple with  $\emptyset \bullet$ , we indicate the type of mass that will couple with it, as  $\bullet m$ . Thus a charged mass is composed of  $(\emptyset \bullet) \bullet (\bullet m)$ , which we consolidate to  $(\emptyset) \bullet (m)$ .

**Charge Is Not Quantized**

An interesting immediate result is that the massless charge of a fundamental charged particle is not quantized; it changes as a function of the background potential in which it is embedded. So it is discretized as a function of the background potential (i.e., of the virtual photon flux exchange between it and the surrounding vacuum). Otherwise, e.g., there could be no  $\nabla \emptyset$  created on any charged particle  $q$ , and hence no E-field, and hence electrons would not move in our present circuits. Since they do move in our circuits, charge is not quantized.

**Electrical Current Has Two Components**

The first key to understanding free energy electrical and magnetic machines is to realize that electrical current actually consists of two currents coupled together. Our treatment of an electric charge as a coupled system  $(\emptyset) \bullet (m)$  also means that electron current  $i = dq/dt$  is comprised of two coupled components  $[(d\emptyset/dt) \bullet (dm/dt)]$ . This follows from simply invoking the operator  $d/dt$ ; i. e.,  $d/dt[(\emptyset) \bullet (m)] = (d\emptyset/dt) \bullet (dm/dt)$ , which is the same as  $[(d\emptyset/dt) \bullet] \bullet (\bullet dm/dt)$ . The component  $(d\emptyset/dt) \bullet$  is the known but not well understood massless displacement current, while the component  $\bullet (dm/dt)$  is the mass displacement current, and the coupling operator  $\bullet$  means "coupled to" or "trying to couple to". The coupling operator represents a real physical operation: the exchange of virtual photons between the vacuum potential and the charged mass. Any potential  $\emptyset_1 \bullet$  is considered to be a potential that is superposed upon the ambient vacuum potential  $\emptyset_0 \bullet$ , to provide a potential  $(\emptyset_0 + \emptyset_1) \bullet$ . The ambient vacuum potential does not disappear merely because we add another potential to it!

**Confusion In Present Electrical Physics**

We point out that, in physics books of note, the overt coupling effect is essentially unknown or ignored because physics presently has not defined either the scalar potential or the electrical charge. The conventional theory simply uses an "inert" expression  $d\emptyset/dt$  to represent the displacement current (and another inert expression  $q$  for a charged mass), and most theoreticians are uncomfortable even with that. The displacement current is also confused with force by equating the displacement current  $d\emptyset/dt$  to  $dE/dt$ . In turn, this means that  $d\emptyset/dt$  is confused with mass, hence with  $dm/dt$ , which latter is also a component of  $dq/dt$ .  $m$  is always an \internal component\ of force, as is known in foundations of physics but this fact continues to remain completely oblivious to the electricians. [Good electrical theorists do admit that there is no force in the vacuum; and that the force associated with the E-field is evidenced

only in the interacting mass. However, they continue to maintain the E-field (force per point-coulomb of charged mass) in the vacuum, when there are no point-coulombs of charged mass there!

## Mass Is an Internal Component of Force

It is easy to show that mass is always a component of force: We will simply define *force* precisely. We first insist that no equation can be used as a definition; an equation simply states that the magnitude of one of its sides and the magnitude of the other side are equal. (The length of a board and the length of a human may be equal, but writing that as an equation has absolutely nothing to do with the definition of either a board or a human). So we will insist that any true definition must be an *identity*.

We define force  $F$  as  $F \equiv d/dt(mv)$ , whereupon mass is a component of force *a priori*. It follows that, if we define the E-field  $E$  as the force per coulomb, we are defining it as the force existing at a point and having a point-coulomb of charged mass as one of its major components. We may accurately now define  $E$  as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ , where the absolute value symbol in the denominator is essential,  $q/|q|$  being one point-coulomb. [We leave as an exercise for the reader the further reduction of this definition by treating  $q$  as  $\bullet(\Phi \bullet m)$ ].

At any rate, with the new and correct definition of the E-field, one can see that the flow of displacement current ( $d\Phi/dt$ ) upon a collector such as a rigid capacitor, containing a fixed charge  $\bullet(\Phi \bullet m)$ , will result in the formation of an excess  $\nabla \Phi \bullet$  upon those restrained charges in the capacitor plate, so that there is created an  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ . Since the conventional theory considers the antigradient of the potential as an E-field, then one can now see the exact mechanism that creates this E-field that grows upon the capacitor (across its plates) as it charges. In fact, the  $q/|q|$  cannot change in a capacitor if its plates and dielectric are immovable. Instead, in that case, the  $\Phi \bullet$  portion of the trapped  $\bullet(q)$  changes, producing the  $(\nabla \Phi) \bullet$  change. Since the  $(\nabla \Phi) \bullet$  component is coupled to the mass component of the fixed  $\bullet q$  as  $(\Phi + \nabla \Phi) \bullet m$ , then an E-field is created and exists as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ .

## An Ideal Capacitor Is an Electron Current Blocker

We point out that, if the capacitor's components are ideal, *completely rigid*, and do not physically move, then the capacitor is a " $\bullet dm/dt$  blocker." If the charges really were frozen in place, then the potential would flow across the plates at the speed of light, via the flow of excess massless displacement current  $d\Phi/dt \bullet$ . In that case, an ammeter would not show the classical "exponential fall-off" of the current with time; the electron current  $dq/dt$  would occur as a single-point Dirac delta function at  $t=0$ , and would be zero thereafter. And no electrons would be able to move in zero time. The voltage would show an instantaneous adjustment to the charged value with a single step-function, and the capacitor would charge up fully, instantly, with no work (energy loss) whatsoever being done. And this charge-up of the capacitor would not dissipate in the slightest the source furnishing the voltage; there would be no electron current  $dq/dt$  through the back EMF of the source, hence no work inside it to deplete its separation of charges.

## Problems With Ordinary Capacitors

However, most ordinary capacitors are much more than just an ideal capacitor. The plates move, the dielectric moves, etc. due to the forces created upon them by the E-fields created upon the trapped charges in them. The spatial translation of the resulting force moving the plates constitutes work; i.e., it dissipates some of the flowing  $d\Phi/dt$  energy. Each movement of the plates and/or dielectric carries with it all its internally trapped charges. The movement of those charges constitutes a substantial longitudinal electron current  $dq/dt$ , when compared to the longitudinal "drift" electron current in normal circuits. [Electrons spend most of their time moving radially in a wire, not down it.] This "moving plate and its transported charges" make an electron current, which pumps the inert electrons in the ground return line back through the back EMF of the source, depleting the source. Consequently, the ordinary capacitor will simply release as much energy as work (to move the plates and dielectric) as it stored. Hence, it will also produce dissipation of the source via the amount of energy stored in the capacitor. You still get "free energy" stored in the capacitor, but also dissipate the source by an equal amount.

## Rigidized Capacitors Must Be Used

Only rigidized capacitive collectors are useful in free energy devices. Such capacitors are in fact actually available, e.g., as calibration standards, but they are extremely expensive (\$400 to \$2,000 or so each, for a capacitance reaching about 1 uf).

So, capacitive type collectors must be rigidized, if used in overunity circuitry. Even so, in a single integrated circuit, although one collects free energy, one will use half of what was collected to dissipate the source. Not all the remaining half will be discharged

through the load; some will be discharged in other circuit and component losses. Hence, there will always be less work done in the load than is done in the source to kill it, by a conventional two wire single closed circuit. In my second referenced paper (Feb.94), I included precise proof that this is true. One must use energy collection and shuttling between two isolated circuits, and the load discharge current must not pass back through the primary source of potential.

We have previously provided precisely how to utilize capacitive collectors in our two referenced papers. We point out here that the capacitors must be calibration standard capacitors, or specially made rigidized capacitors.

### **It Does Not Require Electron Current to Charge An Ideal Capacitor**

For the benefit of the skeptic, this is already proven. We simply list references (2) and point out the equation that represents the energy  $K$  in a charged capacitor. Here we have  $K = \frac{1}{2}(CV)^2$ . It is totally the displacement current  $d\Phi/dt$  flowing (from a higher potential) onto the charging plate that produces the higher potential  $\Phi$  on that charging plate, and hence a  $V$  between the two plates, one of them (the "ground" side) being held at a constant potential. The mass displacement current component  $dm/dt$  of the electron current  $dq/dt$  has nothing whatsoever to do with energy accumulation; it has only to do with the dissipation of energy that is happening simultaneously in all losses and loads in the circuit loop.

We reiterate that most ordinary capacitors have terrible internal movement, and accomplish as much energy dissipation as they do energy collection by permitting  $dq/dt$  and work performed upon the plates and dielectric to move them. The standard two-wire circuit also guarantees that all such  $dq/dt$  current "through" the capacitor is passed back through the source against its back EMF, doing an equal amount of work in the source to dissipate its separation of charges and "destroy" the source.

An ideal capacitor does not pass  $dq/dt$ , but only massless displacement current as theorized by Maxwell to save current continuity in a circuit containing a capacitor, and hence to save Ampere's current law. That is, an ideal capacitor is a  $dm/dt$  blocking device. However, the capacitors utilized in normal circuits are not ideal capacitors at all. By allowing the plates to move, electron current  $dq/dt$  is created on both sides of the capacitor. Otherwise there would not be a ground return  $dq/dt$ , but only a ground return  $d\Phi/dt$ . This  $d\Phi/dt$  would not and does not push electrons back up through the source against its back EMF; else the ground side of the source, which is engaged in continuous  $d\Phi/dt$  exchanges with the vacuum, would produce destructive amperage  $d\Phi/dt$  in the battery or potentialized source, against its back EMF, while it was simply sitting on the shelf. In fact, a flow of  $d\Phi/dt$  continually runs from the vacuum to the positive terminal, then through the inside of the battery to the negative terminal, and thence back to the surrounding vacuum. Also, the incoming flow from the vacuum "splits" at the positive terminal, where one branch flows inside the source to the negative terminal, and the other branch flows through the external circuit to the ground return line, and thence to negative terminal and back to the vacuum. In the external circuit, the  $d\Phi/dt$  hooks to free electrons and moves them as ordinary  $dq/dt$ . In the internal circuit inside the source, the electrons are restrained, hence they only move when their restraint is overcome.

### **Displacement Current $d\Phi/dt$ Is Real**

In recent years, SQUID detectors have been utilized to detect the magnetic field created between the plates (at right angles) by the displacement current  $d\Phi/dt$  between the plates, providing strong evidence that displacement current is physically real. The best proof that it is real is a charge blocking device, two isolated circuits using energy collection and shuttling, and overunity powering of loads in the secondary circuit.

### **A Problem With Ammeters and Measurement of $d\Phi/dt$**

Note that an ammeter cannot differentiate between displacement current  $d\Phi/dt$  and normal current  $dq/dt$ . In the ammeter, the sample  $d\Phi/dt$  will couple to free electrons, producing a normal  $dq/dt$  inside the ammeter. The driving of this  $dq/dt$  through a precision resistance, e.g., is measured and the instrument is calibrated to show the  $dq/dt$  amperes flowing. One of the major needs of free energy researchers is the development of a good current meter that will differentiate between  $d\Phi/dt$  and  $dq/dt$ , and measure each one. Short of using a mass spectrometer to differentiate the mass current  $dm/dt$ , and comparison of those mass current measurements with an ammeter's measurements of the "current"  $dq/dt$ , and calculating the  $d\Phi/dt$  from that, I presently know of no way to precisely and simply measure and separate the two current components. I have been thinking of utilizing a multi-channel sampling meter set arrangement, where one channel uses a  $dm/dt$  blocking device such as the Fogal semiconductor in this respect, but have not yet developed the complete concept.

### **Better Solution: A Charge Blocking Device**

A better solution than the capacitor or capacitive collector is the use of a special rigid solid state "charge blocking device", such as a Fogal semiconductor, to enable the current separation into two components, blocking of the mass flow component, and passage of the massless displacement current component. *In overunity electrical devices, it is massless displacement current  $d\phi/dt$  that must be separately passed down the primary circuit and collected in the collector as an E-field or an H-field. This provides "free" energy that has been extracted from the vacuum, via the potential difference between the terminals of the source antenna, and collected and stored in the appropriate field, without work.* The collected free energy may then be transferred to the isolated load circuit by a variety of means, for separate discharge through the load without return of  $dq/dt$  through the source.

### The Fogal Semiconductor Meets the Charge-Blocking Requirements

Fogal's marvelous semiconductor blocks passage of electrons into its output terminal, but passes displacement current  $d\phi/dt$  into it. The semiconductor is powered by (receives) normal electron current and excess  $d\phi/dt$ , but outputs pure massless displacement current  $d\phi/dt$ . A charge blocker that passes  $d\phi/dt$  is ideal for our overunity mechanisms, enabling them to be readily obtained as we shall shortly see.

### Energy, Flow, Finite Amount of Energy, and Collectors

We accent that the flow of energy in an electrical circuit is purely by means of the massless displacement current component ( $d\phi/dt$ ). The flow of the mass component  $\bullet(dm/dt)$  represents the "flow of work" (*energy dissipation*) in the circuit. Power is rigorously the time rate of doing work, and electron current  $dq/dt$  is a part of power. It has nothing whatsoever to do with the time rate at which *energy is transported without loss*; instead, power represents the rate at which energy "leaks" or is "lost" during its transport.

All measurement is work, not energy. Energy cannot be measured, even in theory, a priori. Energy is also a flow process, and never a finite amount in one location. A specific differential of energy flow may exist on a specific finite collector. However, it only represents a certain constant differential amount of energy flow compared to the universal vacuum energy flow or some other flow reference point. It is like a whirlpool in the river. Energy is like the flowing water, and an "amount" of energy is like the amount of water in the collecting whirlpool form (between its input flow and its output flow) at any time. Obviously, energy (ordering) forms can come and go; the water flow itself remains. Any "magnitude of energy" is always a "trapped" amount of energy in a "collector" (form).

### Decoupling Current Components and Utilizing $d\phi/dt$

The two components of electron current  $dq/dt$  can be decoupled, by blocking the  $\bullet dm/dt$  component while allowing the  $d\phi/dt$  displacement current to continue to flow. In our first paper, we pointed out one way: utilizing a special degenerate semiconductor material whose electron gas relaxation time is extended, providing a finite time during which the material serves as a *charge (i.e., a charged particle) blocking device*, while passing the flow of potential (the  $d\phi/dt$  massless displacement current component) and restraining the mass displacement current component  $\bullet dm/dt$ . With the advent of Fogal's semiconductor, the process becomes much easier to obtain and utilize in practical machines and circuits.

In our second paper, we pointed out a second way: utilize an ordinary capacitor and ramp-up step-charging. We found, however, that in most ordinary capacitors, the capacitive aspect is defeated by the sloppy movement of the plates and dielectric, converting  $d\phi/dt$  into  $dq/dt$ . Only a few very carefully selected capacitors are sufficiently rigid and can provide overunity. One must use *rigidized* calibration standard capacitors for the ramp-charging by series steps method to be successful. With ordinary capacitors, however, one can readily demonstrate that the efficiency can approach 1.0 rather than 0.50 as expected.

### Overunity Secrets: Charge Blocking, Collection, Shuttling, and Two Isolated Circuits

The charge (actually *charged mass*) blocking approach provides a massless, free flow of vacuum EM energy that can be directed to a collector (capacitive or inductive) where it can be stored in either an E-field or a B-field. This stored energy can then be transferred to an isolated load circuit whose electrons (and hence their  $\bullet dm/dt$  mass displacement current) are free to flow as  $dq/dt$ . In the isolated load circuit, then, the two components  $[(d\phi/dt)\bullet(dm/dt)]$  again couple to form  $i = dq/dt = [(d\phi/dt)\bullet(dm/dt)]$ , powering the load. All work in an electrical circuit is due to the mass displacement current  $\bullet dm/dt$  component; the massless displacement current ( $d\phi/dt$ ) is a flow of pure energy transport without loss, as is well-known. (For example, see Reference 4.)

Therefore, the first major free energy secret is simply to block the "working" component  $\bullet dm/dt$  of the current  $dq/dt$  while allowing the excess "lossless energy flow" component  $d\phi/dt$  to flow to collectors to produce either free E-field or free B-field thereupon.

The second major secret is to transfer the collected excess free energy (via energy shuttling) to a second, isolated, load circuit, where the energy is discharged through the load in the conventional fashion (i.e., such that the two current components are coupled, and electron current  $i = dq/dt$  occurs through the load). The second circuit must be isolated from the original collection circuit, so that none of the load electron current  $dq/dt$  passes back through the original source, against its back EMF.

Should the grounds be the same between the load circuit and the collection circuit so that load electron current is returned through the back EMF of the primary source, then exactly as much excess work will be done inside the source to dissipate its separation of charges as was done in the external load to furnish useful work and in the external losses. In that case, overunity is destroyed, because one is using one-half the excess free energy to destroy the source faster, while the remaining half is distributed among all external loads and losses. Since there are always some external losses besides the load, then the ratio of load power to source dissipation power is always less than unity in a conventional closed-loop circuit containing both load and source. Hence the necessity for utilizing two isolated circuits: one where energy is collected freely from the source, and one where energy is dissipated as work in the load without dissipative work in the source, and energy shuttling between them.

### A Simple Open-Loop Overunity Device

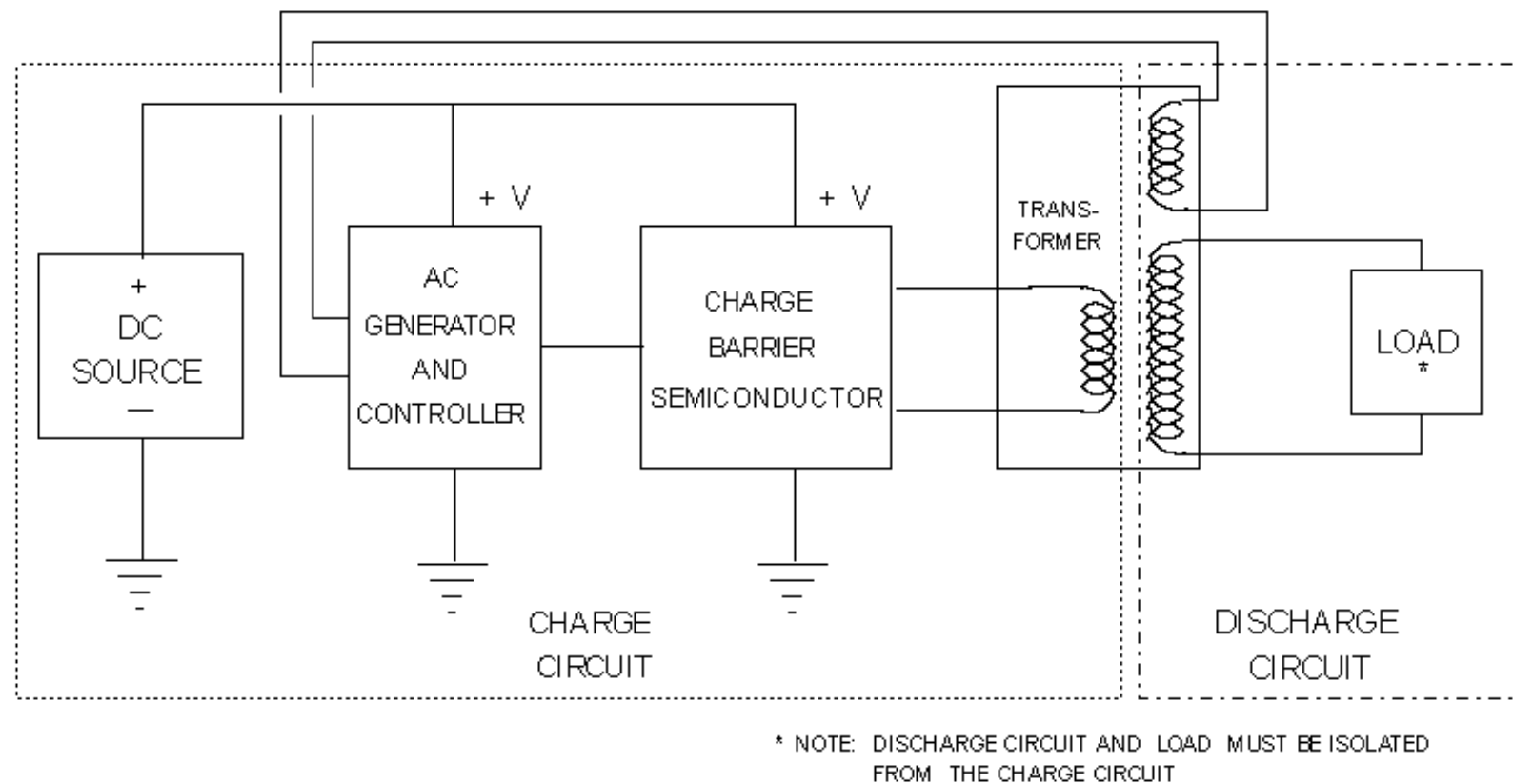


Figure 1. Use of Charge Barrier Device to Achieve Overunity in a Shuttle Circuit.

Figure 1 shows a very simple but very powerfully amplified overunity device, using an AC charge blocking semiconductor (CBS) (such as a Fogal semiconductor). The gist of the circuit is that an AC source furnishes AC current  $dq/dt$  to the CBS, which uses some of the power to power itself, but then blocks the  $dm/dt$  portion of the  $dq/dt$  input current, passing only the massless displacement current component  $(d\phi/dt)$  into its output circuit. The  $(d\phi/dt)$  output of the CBS is fed through the primary winding of a transformer, in this case a step-up transformer. The "current gain" of the CBS will depend upon (1) the load connected to it, and (2) the ability of the CBS to continue to block the increasing E-field on its trapped charges, as more free energy flow  $(d\phi/dt)$  is drawn through it by the load. Thus the load and the CBS must be matched within the operational ability of the CBS, so that the CBS does not fail catastrophically.

In the primary winding of the transformer, the  $(d\phi/dt)$  displacement current produces a magnetic field  $H$ , storing the excess flowing

energy in that field. This is a normal magnetic field; all magnetic fields are produced by the  $(d\Phi/dt)$  component of the current anyway. This magnetic field, as it changes, couples to the secondary winding, producing a normal magnetic field  $H$  therein by normal means. In the secondary circuit, electrons are not restrained by a CBS. Hence the  $(d\Phi/dt)$  induced in the circuit on the secondary side couples to the unrestrained electrons, producing normal electron current  $dq/dt$ , and driving it through the load to power it. Note that energy is conserved across the primary and the secondary; however, dissipative power and work (energy loss rate and energy loss) are not conserved, because a free flow of lossless excess energy in the form of displacement current is flowing from the vacuum through the source antenna, thence to the CBS, through it to the primary of the transformer and into the primary magnetic field, through it to the secondary magnetic field, through it into the  $(d\Phi/dt)$  induced in the secondary circuit and coupled to the electrons, through the resulting  $dq/dt$  into the load, where the scattering of photons as heat dissipates the free flowing energy in the displacement current  $d\Phi/dt$  component flowing through the load as a component of  $dq/dt = (d\Phi/dt) \bullet (dm/dt) = (d\Phi/dt) \bullet (dm/dt)$ .

### Free "Power" Amplification

If one places an ammeter in the output from the CBS, between it and the primary winding of the step-up transformer, one will read the  $(d\Phi/dt)$  as *normal  $dq/dt$  in the ammeter itself*. If one calculates the "free power" (i.e., the rate of energy dissipation) that is going into the transformer primary using this as the "current," one will show that energy and "power" are conserved between primary and secondary of the transformer. However, the actual dissipative power going into the primary side is zero or, in real circuits, vanishingly small. Consequently, the device has a very high variable power gain that depends upon the rate of energy draw and dissipation of the load on the secondary side. If one adds more load, one draws more  $dq/dt$  current on the secondary side, hence more excess  $d\Phi/dt$  displacement current on the primary side. The overall "power amplification" is limited by the ability of the transformer to handle the power in the secondary and the ability of the CBS to withstand the pressure of the internal charge barrier. This device can be easily "close-looped."

### The Negative Resistor: A Close-Looped "CBS and Shuttle" System

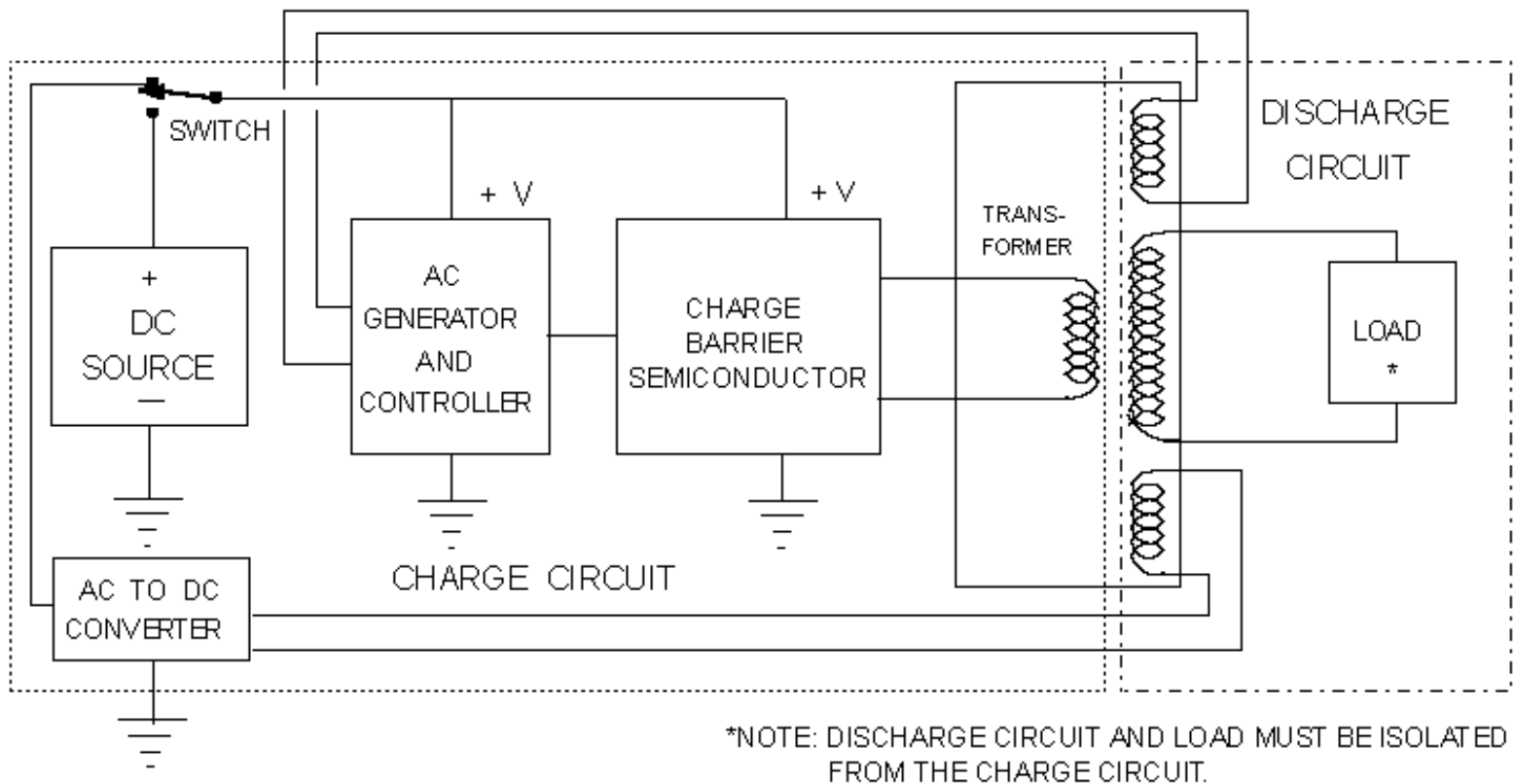


Figure 2. Use of Charge Barrier Device in a Shuttle Circuit With Controlled Feedback, to Achieve a True Negative Resistor.

Figure 2 shows the close-looping of the device shown in Figure 1, in such manner that, once stable operation is underway and the load and input stabilized, the ordinary power supply for the CBS can be switched out of the circuit. In this case, the circuit operates as a self-powered overunity device; i.e., as a *negative resistor*.

A normal resistor receives an ordered energy flow from its external circuit and scatters this energy as work out to the vacuum. I.e., it receives  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$  (scatters the excess  $(\nabla\Phi)/dt \bullet$  component (i.e., of the  $dq/dt$  passing into it from the high potential side) by radiating it away to the surrounding vacuum as scattered photons (heat)), and outputs inert (no excess  $(\nabla\Phi) \bullet$  component) electron current  $dq/dt$  into the ground side.

A negative resistor does exactly the opposite: it accepts inert incoming electrons from its "ground" side, also accepts incoming (converging)  $d\Phi/dt \bullet$  energy from the vacuum as virtual photons being absorbed upon these inert electrons so that a  $\nabla\Phi \bullet$  is added to the electron current, creating an excited, excess energy-carrying  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$ , and passes this excited current out of its high side and out into the external circuit to power the circuit. In other words, the negative resistor becomes a *self-contained free power source*, once brought up to stable operation.

In Figure 1, all that needs to be done is simply to extract some of the secondary power and feed it back to create the power input consumed by the CBS and the other normal components of the primary circuit side of the transformer.

Multitaps can be added to the secondary side, to provide varying voltage power supplies for loads requiring different voltages.

Energy is conserved in the device, because it always functions as an open circuit, receiving excess energy from an external source (the surrounding vacuum, in its virtual photon exchange with the charges in the system). It is far from thermodynamic equilibrium, and classical thermodynamics (including the second law) does not apply.

It is simply a continuous free power supply: it is a *negative resistor*.

Far more complicated units can be designed and produced. The basic point is that this type of overunity power supply is continuous and self-powered, driven by the violent exchange of energy from the vacuum, and simply collecting and gating some of that energy to the load to power the load.

## Conclusion

With this third paper, we complete the triad of papers we set out to write a little over a year ago. With the availability of charge barrier devices such as the Fogal semiconductor, together with the collection, shuttling, and use of free  $d\Phi/dt \bullet$  flowing energy, the *Age of Free, Clean, Electrical Energy* has finally dawned.

Let us use it wisely, and for the betterment of humankind, not for its destruction.

[Support of portions of this research by A.D.A.S. is gratefully acknowledged.]

## References and Notes

1. Bearden, T.E., Feb. 9, 1993, "The Final Secret of Free Energy," ADAS, distributed over Internet. The paper was also published in *Magnets*, 7(5), May 1993, p.4-26, in *Explore!*, 4(3/4), 1993, p.112-126, and in several other media. See also Bearden, T.E., "Additional Information on the Final Secret of Free Energy," Feb. 15, 1994, distributed on Internet.
2. For proof that an ordinary capacitor can be charged almost without entropy, see Fundaun, I., C. Reese, and H.H. Soonpaa, "Charging a Capacitor," *American Journal of Physics*, 60(11), Nov. 1992, p.1047-1048. See also Calkin, M.G. and D. Kiang, "Entropy change and reversibility," *American Journal of Physics*, 51(1), Jan. 1983, p.78-79. See also Heinrich, F., "Entropy change when charging a capacitor: A demonstration experiment," *American Journal of Physics*, 54(8), Aug. 1986, p.742-744. See also Gupta, V.K., Gauri Shanker, and N.K. Sharma, "Reversibility and step processes: An experiment for the undergraduate laboratory," *American Journal of Physics*, 52(10), Oct. 1984, p.945-947.
3. In most texts, the treatment of displacement current is far from adequate. A better treatment than most is given by Krauss, John D., *Electromagnetics*, Fourth Edition, McGraw-Hill, New York, p.437-439, 547-549. This treatment must still be augmented by treatment from other texts, and the ensemble "synthesized." Even then, it will never be completely clear until the separation of mass from the massless charge, and separate accounting of the two, is accomplished in the manner pointed out by the present paper.



4. For a typical confirmation that massless displacement current is already known to be lossless transport of energy without entropy, i.e., without work, see Buchwald, Jed Z., From Maxwell to Microphysics, University of Chicago Press, Chicago and London, 1985, p.44. Quoting: "...no energy transformation into heat occurs for displacement currents." It should be obvious from this fact alone that the proper way to accomplish overunity in electrical devices is to utilize the massless displacement current to flow and store excess energy, then use a "heat pump" type cycle to transfer the collected energy to a separate load circuit and discharge it separately in the load.
5. For a very recent proof that the potential is a flow process, and in fact consists of bidirectional EM waves, see Hsue, C.W., "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," IEEE Microwave and Guided Wave Letters, 1993, Vol. 3, p.82-84.
6. For proof that the vacuum EM zero-point energy is continually produced by a cosmological feedback from every charged particle in the universe, see Puthoff, H.E. , "Source of Vacuum Electromagnetic Zero-point Energy," Physical Review A, 40 (9), Nov. 1, 1989, p.4857-4862.
7. For proof that in theory the vacuum energy can be tapped, see Cole, daniel C. and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," Physical Review E, Vol. 48, No. 2, Aug. 1993, p.1562-1565.
8. For proof that a higher topology examination of EM phenomena allows energy collection as potentials and energy shuttling in circuits, see Barrett, T.W., Annales de la Fondation Louis de Broglie, Vol.16, No. 1, 1991, p.23-41. Barrett shows that EM expressed in quaternions allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. He in fact shows that Tesla's patented circuits did exactly this.
9. Stoney, G.J. (1897) "XLVII. On a Supposed Proof of a Theorem in Wave Motion, To the Editors of the Philosophical Magazine," Philosophical Magazine, 5(43), 1897, p.368-373. Stoney first pointed out the bidirectional EM wave decomposition of the scalar potential.
10. Whittaker, E.T., "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, 1903, p.333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol.1, 1904, p.367-372.

# BEARDEN

## THE FINAL SECRET OF FREE ENERGY



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# THE FINAL SECRET OF FREE ENERGY

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February 9, 1993  
(slightly revised March 23, 1993)

## **Foreword**

This paper contains the real secret of tapping the vacuum energy very simply, using almost any source of potential (battery, electrostatic generator a la Swiss electrostatic device (the Testatika), elevated wire wire/250 V/m in the earth/ionosphere potential, etc). The objective is for the moderately technical reader to understand how to build and understand not only a single device, but also hundreds of different kinds of them. While it is quite simple, the "magic principle" contained in this paper only took me some 30 years to discover.

The precise definitions necessary to understand the free energy rationale are included. Also included are some very simple pseudo equations for the process. Do not underestimate these simple pseudo equations -- they tell the tale that's needed.

Also, there has been little or no time to "dress up" the paper. It's simply written down very informally, to get the necessary points across.

Nearly everything *fundamental* that we've been taught about EM energy is wrong or incomplete. Even the *definition of energy* in physics is wrong! Let me summarize a few of the things that are wrong with the classical electromagnetics (CEM) model as follows:

CEM is still utilizing a model based on a material ether. Although the Michelson-Morley experiment destroyed the material ether assumption in 1887, the classical EM model has never been corrected. It also contains no definition of charge, and no definition of potential. In many cases, algorithms to calculate a magnitude are boldly and erroneously advanced as "definitions." CEM still prescribes the force fields as the causes of all EM phenomena; it has been known since 1959 that forces are effects and not causes, that EM force fields exist only in and on the charged particles of mass in the physical system, and that the potentials are the primary causes of EM phenomena. The lack of definitive definitions of mass and force in mechanics is carried over into EM theory; there is no adequate definition of EM force or of EM mass. The magnitude of the electrical charge on an electron is not quantized. Instead, it is discretized, being a function of the magnitude of the virtual photon flux (VPF) exchange between the vacuum and the charged particle. When the charged particle is placed in a potential that differs from ambient, then the magnitude of the VPF -- and hence the magnitude of the electric charge on the electron -- is altered. The CEM assumption of an "empty vacuum" is totally falsified by modern quantum mechanics. The CEM notion that EM force fields and force field waves exist in vacuum is totally false. Only potentials and potential gradients exist in the vacuum. EM waves in vacuum are not force field waves as CEM prescribes; instead, they are oscillations of potentials and potential gradients. Potentials have a bidirectional EM wave-pair structure, where the bidirectional wave pairs are phaselocked in a harmonic series. In each wave pair, photons and antiphotons are continually coupling (into spin-2 gravitons) and decoupling. This is where gravitation and electromagnetics are unified. The CEM notion that singular EM forces exist in either matter or the vacuum is false; Newton's third law requires that

all forces exist in opposite pairs. Not a single one of the equations universally taught as "Maxwell's equations" ever appeared in any book or paper by James Clerk Maxwell; instead, they are Oliver Heaviside's equations. Maxwell's actual theory was written in quaternions, which is a complete system of mathematics. The Heaviside/Gibbs vector version

(1) has a lower topology,

(2) is not a complete system of mathematics, and

(3) actually captured only a subset of Maxwell's actual theory.

Tensor theory does not recapture that which was lost.

There are even more errors in CEM, but these should suffice to make the point: *Classical electromagnetics theory is seriously flawed, with archaic foundations, riddled with errors, and it should be completely redone.* Until this revamping of CEM is accomplished, the present model solidly blocks free energy, antigravity, a unified physical field theory, and a unified theory of mind and matter interaction.

A second paper this year will detail the exact long-term causative mechanism for cancer and leukemia, and the exact mechanism for essentially 100% cure of terminal tumors in laboratory animals, demonstrated by the Priore team in France in the late 1960s and early 1970s. The same mechanism can be used to cure AIDS.

Throughout the world, humankind is suffering. In the poor populations of the world, early death is the norm, as is frequent famine. One third of the human race goes to bed hungry each night. Protein starvation of children is common. One third of the human race is infected with worms. Many other diseases ravage the far-flung poor peoples of the world. They have little or no industries. They have no abundant electrical power. They have little education, and little modern knowledge. They have little or no medical treatment. In short, they are born without hope; live in misery, filth, disease, and poverty, and die without dignity.

Meanwhile, the factories, cities, and enclaves of the "developed and developing" worlds belch forth fumes, toxic and hazardous wastes, and pollutants. They also spew forth weaponry which for one reason or another is used to arm the poorer nations, for use in destroying themselves and their impoverished neighbors. Warfare, terror, banditry, despotism, and all the four horsemen of the Apocalypse are truly loosed in the earth.

We simply must do better than that. And we *can* do better than that! But to do better, we've got to make the basics available to impoverished nations, cheaply and easily. Primary among their needs are energy and medical treatment. Given those, populations can be stabilized, people educated, development begun, and the living standard drastically elevated.

So that is the immediate goal. In this paper, I am freely giving away what required me an arduous 30 years of my life to discover. Shortly we will also detail the new methodology for a new therapeutic science, hopefully to cure the diseases that ravage humanity.

God willing, this paper will trigger a thousand, or even ten thousand, scientists and engineers to develop overunity energy devices. If so, shortly we can rid our biosphere of noxious automobile and factory exhausts, radioactive nuclear wastes, and massive oil spills. We can remove many of the hydrocarbon combustion pollutants from the air, stop acid rain and the destruction of our forests, and stop the steady rise of carbon monoxide in our air. If that truly tends toward a "Greenhouse" effect, then we can halt that effect as well.

The Creator has always given us bountiful free electrical energy, everywhere, easily and readily for the simple taking. It has only been our own blindness and folly that have prevented us from seeing and using this free energy bounty.

So here is the final secret of abundant, free electrical energy. Please use the knowledge well and see that its benefits also accrue to those impoverished ones who need it so desperately. Remember the adage, "Inasmuch as you have done it to these little ones..."

*This is for those little ones. You are our brothers and sisters. We want you to live. And we want you to have a better quality of life, not just bare existence. We care.*

Tom Bearden

February 9, 1993

## THE FINAL SECRET OF FREE ENERGY

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### Some Definitions

**The Quantum Mechanical Vacuum:** First we need some definitions. We start by assuming the *quantum mechanical vacuum*.<sup>1</sup> Empty "spacetime" is filled with an incredibly intense flux of virtual particles. It is a plenum, not an emptiness. We shall be interested only in the fantastic flux of *virtual photons*, for we are discussing electromagnetics.

**Energy and Potential:** *Energy* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. *EM energy* is any ordering, either static or dynamic, in the virtual photon flux (VPF) of vacuum. That is, for a particular kind of "field" energy, we simply choose the so-called quantum particle of that field, and consider only that kind of virtual particle flux.

*Potential* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. Hey! That's exactly the same definition as energy. Quite correct. Energy and potential are identically the same. Neither is presently defined correctly in physics.

Energy is normally defined as "Energy is the capacity to do work." That's totally false. Energy has the capacity to do work, because work is correctly defined as the dissipation (disordering; scattering) of energy (order). The scattering of energy is work. It is not energy! I.e., *energy is not definable as its own scattering!*

Look at it this way: A man *has* the capacity to catch fish. That is true, but it is not a definition, since a definition must in some sense be an *identity*. You cannot say that a man *is* the capacity to catch fish! That may be a submitted definition, all right, but it is false. Similarly, energy *has* the capacity to do work; that is one of its attributes. But energy *IS* the ordering in the VPF (we are referring from now on primarily only to EM).

**Scalar and Vector Potentials:** The *scalar potential* is any static (with respect to the external observer) ordering in the VPF of vacuum. The *vector potential* is any dynamic (with respect to the external observer) ordering in the VPF of vacuum. We shall be interested in the electrostatic scalar potential. So it is a static ordering -- a stationary *template* -- in the VPF of vacuum, much as a whirlpool is a stationary ordering (template, form) in the rushing flow of a river.

### The Scalar Potential Has An Internal Structure

**The Structure of the Scalar Potential:** According to rigorous proofs by Whittaker<sup>2</sup> and Ziolkowski,<sup>3</sup> any scalar potential can be mathematically decomposed into a *harmonic series of bidirectional wave pairs*. Figure 1 shows this Whittaker/Ziolkowski (WZ) structure. In each pair, the forward-time wave is going in one direction, and its phase conjugate (time-reversed) replica wave is going in the other. According to the so-called *distortion correction theorem*<sup>4</sup> of nonlinear phase conjugate optics, this PCR wave must precisely superpose spatially with its partner wave in the pair. The two waves are *in-phase spatially*, but 180 degrees *out of phase in time*. The wave is made of *photons*, and the antiwave (PCR wave) is made of *antiphotons*. It follows that, as wave and antiwave pass through each other, the photons and antiphotons are coupling and uncoupling with each other, because the antiphoton is a PCR photon, and PCR's precisely superpose spatially with their partner. A photon or antiphoton has wave characteristics, because it has a frequency; if the wave aspects are perfectly ordered and perfectly correlated, then so are the photon's particle aspects.

**A Potential Is An Ordering Across the Universe:** So we have -- astoundingly -- perfect VPF inner ordering infolded in the electrostatic scalar potential! We also have perfect wave/antiwave ordering infolded in there. When you collect a simple set of charges on a small ball or in a region, the scalar EM potential from that set of charges reaches across the universe. In it you have an infinite harmonic series of phase-locked time-forward EM waves going out from the charges to all distant points of the entire universe. And you have an infinite harmonic series of phase-locked time-reversed EM waves coming from all points of the universe, back to the "collected charges" source.

**A Potential Is A River of Energy:** The point is, you have established a *mighty, hidden, 2-way river of energy* between that collection of charges and every other point in the universe. There is infinite energy in each of those infolded waves and antiwaves. But in a localized region, the *energy density* in each wave is finite. Since in finite circuits the potential interacts with a localized set of mass, we shall be concerned with the *local energy density* (joules/coulomb) *of the potential*.

But forget the conventional myth of visualizing the potential as pushing a unit charge in from infinity "against the force field" -- there *isn't* any force field in the vacuum, as is well-known in quantum mechanics. Also, Newton's third law requires all forces to occur in pairs -- each pair consisting of a force and its 3rd law reaction force. From that viewpoint alone, there is no such thing as an EM forcefield or force field wave in the vacuum. There are just *gradients of the vacuum potential* present in the vacuum. In the vacuum, an EM wave is actually a wave of the phase locked gradients of the electrostatic scalar potential and of the magnetostatic scalar potential. And each such gradient wave is simultaneously accompanied by its phase conjugate gradient wave, because of Newton's third law.

*Newton's third law requires forces to occur in pairs of equal but antiparallel forces.*

Both wave and antiwave co-exist simultaneously in the vacuum EM wave.<sup>5</sup> Therefore it's a stress potential wave, not a force field wave. It's more like an electromagnetic sound wave,<sup>6</sup> and so it is a longitudinal wave, not a transverse wave. In the EM vacuum wave's interaction with matter (the so-called "photon" interaction), the wave normally half interacts with the electron shells of the atom, giving translation forces, while the anti-wave half interacts with the atomic nucleus, giving the Newtonian 3rd law reaction (recoil) forces (waves). The EM wave in vacuum is an *electrogravitational wave*.

**Energy Is Internally Infinite and Unlimited:** A static potential -- which is identically excess *energy* -- is internally dynamic and infinite. Energy is internally infinite and unlimited! But it has a finite *energy density* in a local region of spacetime. Since energy interacts with matter locally, we shall be concerned with the *local energy density* (joules per coulomb).

**A Principle of Great Importance:** The only way you can have a "chunk" or finite amount of energy to dissipate in a circuit as work is to first have a potential's local energy density interact with a local finite mass collector. The normal interacting mass collector is the free electrons (the free electron gas) in the circuit. You can have, e.g., (joules/coulomb x coulomb); (joules/gram x grams); (joules/m<sup>3</sup> x m<sup>3</sup>); etc.

**Voltage, Force, Potential Gradients, Loads, and Work:** Now let's look at circuitry aspects. Conventionally they are a mess. *Voltage* is "essentially" defined as the "drop in potential." In other words, it's the dissipation (disordering) of a "finite amount" of potential gradient. But the only way you can get a "finite amount" of infinite energy/potential gradient is by first interacting the potential gradient's internal, finite, excess energy density with a finite "collector" mass. E.g., (joules/coulomb available for collection) x (coulombs collecting) = excess joules collected on the interacting coulombs, available for dissipation.

So *voltage* is really the dissipation of a finite collection of excess EM energy/potential gradient. The *dissipation* of potential or of its gradient is not potential! You cannot logically define either potential or energy as its own dissipation!

We presently use the notion of "voltage" in two completely contradictory ways in electrical physics. Here's how we got the confusion: We take a potential gradient (which has a local energy density), and we "collect" it across some charged masses in a locality -- usually the free electrons in the free electron gas in our circuitry. That is, we express the finite energy density of the potential gradient (before collection onto charges) in the local region in terms of *energy per coulomb*. The potential gradient actually is a change to the ambient potential, and so it contains an *excess* energy density (the magnitude may be either positive or negative). We then collect this potential (actually this potential density) on a certain number of coulombs, which places tiny little gradients of potential across (coupled to) each free electron. The local excess energy density of the potential gradient multiplied by the amount of collecting mass gives the amount of excess energy collected (on the interacting charges/coulombs). On each collecting particle, that little gradient, together with the coupling particle, constitutes a tiny force.  $F$  is not just *equal to*  $ma$  (non relativistic case); instead,  $F \equiv (ma)$ , where (mass x acceleration) is considered as a unitary, inseparable thing. So that little *potentialized electron* (that little *EM force*) moves itself around the circuit. In the load (scatterer), the little potentialized electron (the little force) is subjected to jerks and accelerations, thus radiating energy (shucking its gradient). Since this is done in all directions in the scatterer (load), that gets rid of the gradient, reducing the "little force" (potentialized electron) to zero because the little potential gradient is lost due to radiation.

### **Collecting And Dissipating Energy**

**Energy Dissipation and Collection:** Without further ado, we consider the scalar potential's local energy density in terms of *joules per coulomb*. That is, in a specific glob of charges (i.e., in finite circuits), the amount of energy collected from a potential gradient onto the finite number of charges receiving/collecting it, is equal to the number of joules of energy per coulomb that is in the potential gradient, times the number of coulombs collecting (receiving) the potential gradient. The current is the activated (potentialized) coulombs per second that dissipate their potential gradients during that second. The current multiplied by the *time the current flows* gives the activated coulombs that dissipated their activation (potentialization) during that flow time. *Dissipating, activated coulombs* multiplied by the *excess energy collected per activated coulomb* gives the energy dissipated (the work or scattering done) in the load.

We define *collection* as the connection of a potential gradient (a source) to the charged masses in a circuit element (the element is called the *collector*), which for a finite delay time does not allow its potentialized free electrons to move as current. In the collector, during this delay time these trapped electrons are "activated" by potential gradients being coupled to them.



Technically, that delay time in the collector is known as relaxation time,<sup>7</sup> in the case of the free electron gas<sup>8</sup> (in a wire or in a circuit element). A collector then is a circuit element that has a usable, finite relaxation time. During that relaxation time, the trapped electrons are potentialized without movement as current; each collecting/receiving free electron gets a little gradient across it, but no current yet flows. In other words, during this finite relaxation time (collection time), we extract potential from the source, but no current. Thus we extract energy (potential), but no power (which is voltage x amperage). During the relaxation time, we extract from the source only a flow of VPF, which is continually replaced in the source by the vacuum's violent VPF exchange with the source's bipolarity charges. We do not extract power from the battery/source during relaxation time, but we extract free energy density. That free energy density, coupling with a finite quantity of electrons, gives us a collected finite amount of energy. With that background, let's start again, and go through this in a useful "free energy" manner.

**The Electron Gas.** We refer to the conventional model of the free electron gas in a wire.<sup>9</sup> Although the electrons in this gas actually move by quantum mechanical laws and not by classical laws, we shall simply be dealing with the "on the average" case. So we will speak of the electrons and their movement in a classical sense, rather than a quantum mechanical sense, as this will suffice very well for our purposes.

When one connects a circuit to a source of potential gradient (say, to a battery), the first thing that happens nearly instantly is that the potential gradient races onto the coupling wire and heads down it at almost the speed of light. As it goes onto the wire, this gradient "couples" to the free electrons in the free electron gas. However, inside the wire, these electrons can hardly move down the wire at all; they can only "slip" once in a while, yielding a "drift" velocity of a fraction of a cm/sec.<sup>10</sup> On the surface, things are just a little bit different. Most of the "current" in a wire, as is well-known, moves along the surface, giving us the "skin" effect. [For that reason, many cables are stranded of finer wires, to provide more skin surface per cm<sup>3</sup> of copper, and hence more current-carrying capability per cm<sup>3</sup> of copper.]

So, initially, little gradients of potential appear on and across each free electron, with a single little  $\nabla\phi$  on each electron, and coupled to it. The couplet of  $[\nabla\phi \bullet m_e]$ , where  $m_e$  is the mass of the electron, constitutes a small  $\Delta E_e$ . [This is rigorous; the conventional EM notion that an E field exists in the vacuum is absurd, and it is well-known in QM that no observable force field exists in the vacuum. As Feynman pointed out, only the potential for the force field exists in the vacuum,<sup>11</sup> not the force field as such. Or as Lindsay and Margenau pointed out in their Foundations of Physics, one does not have an observable

force except when observable mass is present.<sup>12</sup>]. We have stated it even stronger: Not only is  $F = ma$ , but  $F \equiv ma$  (nonrelativistic case).<sup>13</sup> Since no observable mass exists in vacuum, then no observable F exists there either.

### **Force, Coupled Gradients, and Electron Translation**

**Electrons Coupled to a Potential Gradient Move Themselves.** The point is, when activated by a "coupled potential gradient," the activated electron *moves itself* until it loses its activation (its coupled potential gradient).

Let me say that again, in a little more detail. Forget the standard notion that a force field such as the E-field causes electrons to move. Also forget the notion that the E-field is given by  $E = -\nabla\phi$ . In foundations of physics, those equations are known to be incorrect for the vacuum. EM force fields are known (in QM foundations theory) to be *effects*, existing only in and on the charged particles, and not existing separately at all,<sup>14</sup> or in the vacuum at all.<sup>15</sup> Instead of  $E = -\nabla\phi$ , in the vacuum the correct equation would be something like this:  $P_E = -\nabla\phi$ . In this case, we have correctly stated that the potential gradient  $P_E$  provides the potential for producing an antiparallel E-field in and on a coupling/collecting charged mass, and the magnitude and direction of that

potential gradient will be given by  $-\nabla\phi$ , if and only if a charged mass particle is first introduced so that it couples to  $P_E$ .

At any rate, the activated/potentialized electron moves itself. The reason is that it constitutes a force. Force  $\equiv$  (mass  $\times$  acceleration) (non relativistic case). So the potentialized/activated electron is continuously accelerating. However, it is prevented from easily moving down the wire directly. To begin to do that, it essentially has to first move to the outer skin of the copper conductor.

**The Collector:** We now consider a circuit element that we called a *collector*. (It could be a special coil made of special material, a capacitor with doped plates rather than simple conducting plates, or any one of a number of things). The objective is for the *collector* to be made of special material so that it has a free electron gas whose electrons are momentarily not free to move as current (they continue to move violently around microscopically, but essentially with zero *net* macroscopic translation) for a finite delay (relaxation) time, while they are settling themselves upon the surface and preparing to move as current. Let's call the electrons NNTE (no net translation electrons) during that finite delay (relaxation time). During that "no-current" delay time, the NNTE electrons become potentialized/activated by the potential gradient impressed across the collector. So at the end of the NNT time, the NNTE electrons are potentialized, and each is of the form  $[\nabla\phi \bullet m_e]$ .

### **The Secret of Free Energy**

**Two Circuits/Two Cycles:** We are going to use two circuits and two cycles, as shown in Figure 2:

(1) We shall connect a *collector* to a primary source of potential (to a battery) during the short time that current does not yet flow, but potential does. (In other words, during the relaxation time of the collector, we allow the VPF to flow onto the NNTE electrons of the collector and potentialize (activate) them, but do not yet allow the electrons themselves to flow as current, but only to move transversely in the wiring and collector.) This is **cycle one** of a 2-cycle process: This is collection of a specific amount of current-free potential gradient -- power-free energy -- off the potential-source (the battery) onto a collector. During the collection cycle/time, *current does not and must not flow* (we are discussing the ideal case). We are freely "charging up" the collector as a *secondary battery/source*.

(2) At the end of the collection (potentialization/activation) time/cycle in circuit one, the potentialized collector (the charged secondary source) is sharply switched away from its connection to the primary potential source (the battery), and at the same time it is instantly switched into a separate closed circuit with the load. This is important: In **cycle two**, the potentialized collector (with its finite amount of excess trapped EM energy) and the load are connected in a *completely separate circuit*, and one that is closed, with no connection at all to the original source of potential (in this case, to the battery). Specifically, this "load and potentialized collector" circuit is completely separate from the primary source; during cycle two the primary source (the battery) is not connected to anything.

In other words, all we've taken from the primary source (the battery) is *current-free, force-field-free potential gradient*. So to speak, we've taken a "chunk of potential gradient" from the source, nothing else. You simply multiply the potential gradient's local energy density (the so-called "voltage", which is really excess joules per coulomb) by the number of coulombs of charge that is "activated" (that "collects" this voltage or excess joules/coulomb) in the collector. Specifically, we have not taken any *power* from the battery itself, and so *we have not done any internal work inside the battery upon its internal resistance*, by a "closed circuit electron flow" back into the battery. We have not permitted such a flow.

Instead, *we are using the activated collector as a temporary, secondary battery*. We will utilize this secondary battery in a conventional manner to power the load, *which will also kill the secondary battery* (dissipate its trapped EM energy). But that will *not* affect the primary source. The primary source is never used to directly power the load. It is only used as an infinite source of potential gradient (i.e., as an infinite source of *energy density*).

### **The Standard Power Extraction Circuit**

**The Conventional Circuit:** We digress momentarily: In the standard electrical method, the potential source (which is a bipolarity) is connected across the load. This connects both the external load and the internal resistance of the battery itself in series, as the "total circuit load." Electrons then pour through the external load circuit and through the internal battery resistance, from the "electron rich" polarity of the source to its "electron poor" opposite polarity. The scattering of energy in the internal battery resistance is actually doing work to upset the chemistry that is maintaining the battery's charge separation (the bipolarity). In this manner, the source's separation of charges (which is the "gate" furnishing the potential/energy gradient) is being destroyed as the current flows, and this in turn destroys the source of the potential gradient.

In other words, normally we, engineers, are trained to *kill the bipolarity*, which kills the potential source itself! Incredible as it may be, we, engineers and scientists, have been trained to utilize the free "trapped EM energy" furnished by nature through the source, to destroy the source of the energy/potential, *with the same vigor as they power the external load!* In fact, our teachers simply have never learned any other way to do it except this deliberately "self-destructive" manner!

### **A Waterwheel Analogy**

Imagine, if you will, a waterwheel that powers a mill, with a sluice gate upstream in a river, that diverts some river water into the sluice carrying water to the wheel when the sluice gate is opened into the river. The diverted water flows down to the waterwheel, turning it, and the spent water is fed back into the river below the mill site. Now what fool would connect a pulley onto the waterwheel, with a rope running from the pulley to the sluice gate, so that when the wheel rotated, part of the rotational power also was utilized to close the sluice gate and shut off the water, stopping the waterwheel? If one did so, when the sluice gate was opened, the waterwheel would rotate only until the sluice gate was closed, shutting off the water. Then one would laboriously have to pay to reopen the sluice gate again, then again, then again. No self-respecting "waterwheel engineer" would do such an unthinkable, insane thing. But that's exactly what we engineers, electrical physicists, and scientists have been trained to do! We have no *energy* engineers or *energy* scientists at all; instead, we have all been *power* engineers and *power* scientists. We have all been *energy source killers!* In this paper, we shall try to do better, and rectify "one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history," as Tesla called the conventional electromagnetics.<sup>16</sup> By being *energy* engineers, we shall only have to pay for our energy source *once*, and then we shall draw as much energy from it as we wish.

### **External Load Power Is Free; Only The Power In The Source Costs**

Here's the magic secret of free electrical power: ***The power in the external load is absolutely free, and it always has been free.***<sup>17</sup> ***In any load circuit, the only power you have to pay for, and have ever had to pay for, is the power you incorrectly use to kill your own primary source.*** The only power that "costs" more effort/dollars is the power erroneously utilized inside the source to "close the gate" and kill the primary source. Your electric power company doesn't pay for any of the collected energy on your load circuits that is dissipated to power your house. Instead, the power company charges you for its own ignorance. It charges you for its insane use

of its own freely extracted electrical energy to continually kill the bipolarity in each of its generators, thus continually killing the free electrical source of that generator's energy.<sup>18</sup>

***In any electric circuit, we can continue to indefinitely power the external load indirectly from a source, so long as we are not so naive as to use any of the free energy we extract from the primary source to dissipate back inside the primary source itself and shut it off!***

And we can easily and freely multiply electrical potential. As an example, given a single good source of potential, a hundred radial wires can be connected to the source. The same potential will now appear at each of the ends of the hundred wires. A switcher/collector unit can then operate from each radial line's end, and power external loads, without "loading" the original primary source. This "cascading" can be continued indefinitely. A single power plant, e.g., can power the entire electrical grid of the United States. And a single automobile battery can power a large, agile, electric automobile at highway speeds, with sports car acceleration, with unlimited range, without "refueling," and with no noxious chemical exhaust.

### **Obvious Impacts**

Environmentalists should immediately see that the chemical pollution of the biosphere by mechanistic and processes to obtain energy can be dramatically reduced, to almost negligible levels. *There need be no huge oil tanker spills, for there need be no huge oil tankers.* There need be no worrisome radioactive wastes from nuclear power plants, or abandoned hazardous nuclear plants when their life is finished, because *there need be no nuclear power plants.* There need be no noxious exhausts from jet airplanes (which are really what is diminishing the ozone layer and punching holes in it), automobiles, trucks, buses, innumerable coal-fired and oil-fired power plants, etc.

### **The Electronic Smog Problem**

In fairness we point out that, as the usage of free electrical energy mushrooms, we will be dramatically increasing the low-level EM signal density of the environment, and that too is biologically detrimental. Although beyond the scope of this paper, that cumulative biological damage mechanism has also been uncovered by this author. A formal paper is presently in preparation for presentation in March 1993 at the annual meeting and conference of the Alabama Academy of Science.<sup>19</sup> The paper will also present an entirely new definition of cancer, give its exact long-term cumulative mechanism, and give an exact, scientifically proven mechanism for eliminating cancer, leukemia, and other debilitating diseases such as AIDS. For our purposes here, we simply state that we understand the EM "electronic smog" biological damage mechanism, and how to go about developing a total counter for it. Eventually, we would see a small "counter unit" added to each power unit, alleviating the "electronic smog" problem and preventing biological damage.

### **Only Dissipate Energy From a Collector, Not the Source**

**Completion of the Collection Cycle:** But to return to the completion of our collection cycle (cycle one). *During collection, we have not extracted power from the source. That is vital.* We have not moved the gate through which our source is furnishing free energy. We have not diminished our primary source. From our previous definitions of potential, we have indeed extracted *trapped energy* from the primary source, because we placed its "local energy density" across a certain finite collector/mass, instead of extracting *power* (dissipating energy inside the source or battery to spoil its chemistry and deplete its charge separation).

### **All Energy Is Free**

Here's the incredible truth. The entire universe is filled with mind boggling free energy everywhere, in the simplest of things. Simply scrape your feet on the carpet, and you will collect perhaps 2,000 "volts" on your body. At that time, hidden EM energy is flowing from every point in the universe to your body, and from your body back to every point in the universe. We know that all macroscopic matter is filled with stupendous amounts of electrical charge. So an incredible river of energy -- a great flux -- is driving every single thing, from the smallest to the largest. Opening a gate to extract trapped EM energy is simple. Just collect a bit of charge, or scrape your feet hard, or comb your hair briskly. *All we have to do is not be stupid and close the gate once we've got it opened!*

God has been most kind. We have nothing but free energy everywhere. All energy is furnished to us freely! *It's our own blindness that has made us into energy source killers.* All we have to do is open our eyes to the truth of nature's incredible energy bounty. We must just freely collect that bountiful fruit from Nature's tree, instead of chopping down the tree and killing it.

### **Dissipating The Collected Energy**

**The Work Cycle:** We focus again on cycle two. Shortly after the now-potentialized collector is connected to the load at the beginning of cycle 2 (the *power* cycle, or *energy dissipation* cycle, or *work* cycle), the potential gradient across the potentialized collector is connected (transferred) across the free electrons in the load circuit. We assume that the material of the collector and the switching time have been designed so that, shortly after switching to the loading/work cycle, the activated/potentialized free electrons in the electron gas in the collector reach the skin of the collector, and are free to move as current.

So just after the beginning of cycle two, each of the free electrons in the load circuit now is potentialized and free to move down the wiring. Each potentialized (activated) electron has its own little individual potential gradient across it and coupled to it, due to the overall potential gradient from the collector. Remember, prior to coupling to charges, this potential gradient moves through the circuit at light speed. An EM potential gradient coupled to a charged mass constitutes an *EM force field* (excess trapped EM energy per coulomb, times the number of collecting coulombs). Now each little free electron with its potential gradient forms a little E-field (force/charge), and that little E-field (force/charge) is free to move. That's all it takes to move (accelerate) the little activated electron's mass through the load (the scatterer). We strongly stress that *the potentialized/activated electron moves itself*. It doesn't care whether or not the external battery is attached or not. It is its own little motorboat, with its own little engine driving it.

As the little potentialized electrons reach the load (the scatterer), they bang and clang around in there erratically. That is, the "scatterer" (load) causes spurious accelerations ("scatterings") of these self-driven electrons. As is well-known, when a charge is accelerated, it radiates photons. What actually happens is that these little "jerked around" electrons shuck off their little potential gradients in the load (in the scatterer, or the "jerker-arounder") by emitting/radiating photons in all directions. Hence the heat that is produced in the load; the heat is just these scattered photons. The theory of calorimetry already states that all the excess energy (on the potentialized electrons) will be dissipated as this heat (scattered EM energy).

When all the potentialized electrons have radiated away their potential gradients in the load (scatterer), they are no longer potentialized. The free electron gas is again "quiescent" and no longer potentialized/activated (again, we are talking about "on the average" from a classical viewpoint).

### **Repetition and Review**

**Notice What We've Done:** We took some trapped EM energy density (a chunk of potential gradient, a "voltage" before current flows) from the source, by switching that potential gradient (energy density, which is joules per coulomb) onto a collector (containing a certain number of

coulombs of trapped charges) where the potential gradient activates/potentializes/couples-to these temporarily non translating electrons. So the finite collector collected a finite amount of excess energy [joules/coulomb x collecting (trapped) coulombs] on its now-excited (activated) free electrons. Then, before any current has yet flowed from the source, we switched that potentialized collector (with its temporarily restrained but potentialized electrons; with their finite amount of excess trapped EM energy) away from the source and directly across the load. Shortly thereafter, the relaxation time in the collector expires. The potentialized electrons in the collector are freed to move in the external load circuit, consisting of the collector and the load, and so they do so. The scattering "shock collisions" due to the erratic electron accelerations in the load shake off the little potential gradients on the conduction electrons, emitting photons in all directions, which we call "heat." In shaking off the photons, the electrons lose their little potential gradients, hence lose their activation (excess EM energy).

Rigorously, we have extracted some energy in trapped form, and allowed it to dissipate in the load, "powering the load" for a finite discharge/dissipation time and doing work.<sup>20</sup> *Contrary to the conventional electrical power engineering, we have also done this without doing any work inside the source to diminish its ability to furnish potential gradient.*

### **What Is Energy In An Electric Circuit?**

**Energy in an Electric Circuit:** Here's the principle loud and clear. Energy in an electric circuit involves only the potentialization and depotentialization of the electron carriers in that circuit.<sup>21</sup> It involves only the potential gradient (the joules per coulomb) collected by the circuit to potentialize its electrons, and the number of coulombs of electrons that are potentialized during the collection phase. Electric circuits simply utilize electrons as carriers of "potential gradients," from the source to the load, where these gradients and the activated electrons constitute excess trapped EM energy. In the "shocking/scattering" occurring in the load, the jerking (acceleration) of the electrons causes these activated (trapped-energy-carrying) electrons to shuck off their potential gradients by emitting them as scattered photons (heat).

If one is thoughtless enough to allow the primary potential source to remain in the circuit during the "work" phase, then one is using the potentialized electrons to also go back into the primary source and scatter energy from its internal resistance (internal load), *thereby disorganizing the organization that was producing the source potential and energy in the first place.* If one does that, then all the while one is getting some work (scattering of energy) in the load, one is also steadily getting some work done inside the primary source to steadily destroy it! Literally, one is killing the goose that lays the golden eggs.

**Continued Operations:** But back to our circuit. After we complete one full collection/discharge cycle, we wish to continue producing work in the external load. So we simply switch the collector back away from the load and onto the primary source, collect some more current-free potential, and again independently switch the collector with its repotentialized free electrons back across the load. We can repeat this two-cycle process to potentialize the external load and power it as long as we wish, from a battery or other source of potential, and never take any power at all from the primary battery. We do not need to drain the battery or source at all, in order to power a load, unless we attempt to power it directly. Powering the external load is always free!

Nature has been most kind, and we have been most ignorant. You can have all the *trapped electrical energy* you wish, from any source of potential, for *free*. You can power all the external loads you wish, for free, by using a collector as a secondary source, and simply shuttling potential between the primary source and the collector.<sup>22</sup> But you cannot have power for free from (in) the potential source. If you allow current flow in your collection cycle, you are depleting the separated charges inside the battery that are furnishing the source potential.

### **The Coal-Fired Locomotive**

**Rigorous Analogy of a Coal-Fired Locomotive.** Now here's an exact analogy, to assist in understanding. Imagine a coal-fired train, and a fireman shoveling coal. He has an external load/scatterer of energy (the fire in the firebox under the boiler). He has a primary source of potential/energy (the coal car). No fireman in his right mind would ignite the coal in the chute of the coal bin, to try and get some heat energy into the firebox! [That is, he would not attempt to extract *power* from the source. Yet that's exactly what all we engineers are trained to do at present.] Instead, the fireman takes out (collects) a finite amount (a shovelful) of coal (trapped energy). Coal *per se* (the potential gradient) has a certain energy density per unit volume (trapped joules per unit volume of coal) and the shovel (collector) has a certain volume. Accordingly, the shovelful of coal contains a certain amount of trapped joules of energy. In the fireman's shovel (the collector), *the energy remains in totally trapped form, as coal not afire and without its trapped energy being dissipated as work.* [He doesn't act like a fool and ignite the coal in the shovel either!] He then throws that shovel of coal (collected trapped energy) onto the fire (scatterer), completely separately from the coal bin/source. He continues to repeat his shoveling cycle, and each shovelful of coal added to the fire dissipates additional energy, powering the load.

### **The Free Energy Principle**

**All potential gradient (trapped excess energy density) is free for the taking.**<sup>23</sup> The potential is due to the violent VPF exchange between the vacuum and the separated bipolar charges furnishing the source potential gradient. The energy of the entire universe is flowing through that source potential. You can have as much of this internal VPF flux energy (potential) as you wish, as often as you wish, so long as you don't demand *current* (which is power, or the rate at which the energy is being freed and dissipated). It's really simple. You can have all the *trapped* energy you wish, from any source. You cannot connect to the source and start to dissipate the energy as power, however, without starting to close the "gate" from which your free trapped energy is coming.

In other words, here's the iron rule: **If you draw current, you kill the bipolarity gate furnishing the potential gradient (source of energy density). In that case, you kill the source. If you do not draw current, you do not kill the bipolarity gate and you do not shut down the source. In that case, you can continue to "use" it and extract trapped EM energy from it forever.**

### **Definitions Again**

**Definitions:** I'll put down some simple equations, that may help to explain it more exactly. First we repeat some definitions.

Energy is any ordering imposed upon the virtual particle flux of vacuum. EM energy is any ordering imposed upon the virtual *photon* flux of vacuum. Static energy is an ordering (a template) which is stationary with respect to the external observer. Dynamic energy is an ordering (a template) which is not stationary with respect to the external observer.

Potential: Any ordering imposed upon the virtual particle flux of vacuum. Scalar potential is an ordering (template) that is not moving with respect to the external observer. Vector potential is an ordering (template) that is moving with respect to the external observer.

The scalar EM potential is any static (with respect to the external observer) ordering imposed upon the virtual *photon* flux of vacuum. Etc.

Note again that energy and potential have exactly the same definition. Potential is in fact trapped energy. Scalar EM potential is *static EM energy* (to the external observer) or *trapped* (collected) EM energy. In other words, if one takes off a differential of potential onto a fixed



number of coulombs, one takes off a certain magnitude of trapped EM energy. In other words, one takes out a shovelful of coal from the coal car.

### **Importance of Separation of Charges**

**We Must Not Dispel the Separation of Charges In Our Source:** The difference in our coal-fired train analogy and our electrical circuit is that, in the coal train, the coal in the coal car is not automatically and continually replenished. Also, the coal in the coal car has already been collected by the mass of the coal car, so it is not infinite. In the electrical circuit, the potential gradient in the primary source is continually replenished, automatically, and it is infinite (though it has a finite energy density). The reason is simple. EM potential (in the normal sense) is actually a virtual photon flux exchange between the vacuum (the entire vacuum, all over the universe) and a charged particle or collection of charged particles.<sup>24</sup> Thus the potential (gradient) is a powerful energy flux, pumped by the vacuum and the entire universe, that continues automatically, so long as we do not allow the collected charges in our bipolarity source to be dissipated. In terms of a battery, we achieved separation of charges inside the battery by chemical action, and *we paid for that initially*. Once separated, the charges essentially stay separated (because of the chemistry) unless we foolishly do something to dissipate them, such as upsetting the chemistry, so they are no longer separated positive from negative. So if we don't do anything to these separated charges, they continue to be driven by their fierce exchange of virtual photon flux with the vacuum/universe. If we then simply extract some of that flux exchange, without moving the charges, we are directly "gating" trapped EM energy from the vacuum/charged particle VPF exchange.<sup>25</sup>

### **The Potential Is Infinite And So Is Its Energy Content**

**You Can't Dip The Ocean Dry With a Spoon:** Let's say that another way. The charged particles in our potential source are in a constant, seething, equilibrium exchange of trapped EM energy with the entire universe. That energy exchange is so enormous that, if we gate some of it out to collect on some other "temporarily frozen" charges and potentialize/activate them, the vacuum flux doesn't even miss it. It's like dipping a spoonful of water out of the restless ocean. The hole is instantly filled, and the water replenished. We can dip with that spoon as much as we wish, and the ocean will never run dry, but will simply continue to furnish us water, spoonful by spoonful.

The same is true in our electric circuits. We can have all the potential (trapped EM energy density) we wish, for free, from a single source, so long as we do not allow work to be done inside the source to close off our "gate" and kill our primary source.

### **The Twisted Concept of Voltage**

**Before We Develop Some Pseudo-Equations:** In the equations we wish to develop, we have one problem, due to the lack of insight of conventional electrical physicists. That is, they have insisted upon "measuring" and expressing both the infinite potential (nondissipated) and a certain quantity of potential (dissipated) in volts. So they say "a potential of so many volts." That's nonsense, and totally erroneous. Rigorously, a voltage is a drop or a dissipation of so much (a finite amount of) *collected* excess potential/energy. You "measure" the voltage in a voltmeter by impressing a potential gradient upon the electron gas in the circuitry, wherein you collect or get in your voltmeter so much [(joules/coulomb) x coulombs]. A tiny current (coulombs/second) from this internal collection then flows for a finite time through the resistance of the voltmeter. So you dissipate (joules/coulomb) x (coulombs/second) x (seconds), which gives a certain amount of energy dissipated as work in moving the needle of the voltmeter. The voltmeter is calibrated so that it effectively indicates the *collected energy per coulomb* that was dissipated, and it calls that entity voltage. It involves a finite amount of energy that has already been dissipated as work, and it's a measure of the local energy density of the potential in terms of joules/coulomb. It is *not* a measure of the potential proper. It's after the fact; the extracted

So we'll leave it at that, and we'll adapt the notion of potential the way it is corrupted in electrical circuit theory. There it's used not really as energy, but rather as *excess energy per coulomb of potentialized charge*. I apologize for that difficulty, which is not of my own making, but I must use the conventional notion if we are to greatly clarify the pseudo equations.

**The Pseudo-Equations:** Let us use the following subscripts and letter convention, and develop the nomenclature needed:

But  $V_T \times \text{coul}_T = K_T$  [6]

Or

$[V_T] = [K_T] / [\text{coul}_T] = \text{trapped energy/trapped coulomb [7]}$

$[K_T] = [V_T] \times [\text{coul}_T] = \text{amount of trapped energy, each cycle [8]}$

So that's what we were getting at. The amount of trapped energy you can transfer (in other words, how much coal you get in one shovelful) depends upon the number of trapped electrons you have in the trapped free electron gas in the collector, and the potential gradient you apply to those trapped coulombs to potentialize them.

### **Relaxation Time and Semiconductors**

**Relaxation Time:** The time it takes for the free electrons in a conductor (or material) to reach the skin of the wire after potential is applied, is, of course, called the *relaxation time*. During that time, the free electrons in the gas are "trapped" insofar as producing current (dissipation of the potential) is concerned. However, immediately after the relaxation time ends, current begins and dissipation of the trapped energy begins.

In copper, the relaxation time is incredibly rapid. It's about  $1.5 \times 10^{-19}$  sec. However, in quartz it is about 10 days! So as you can see, we need to get somewhere in between these two values, and so we will have to "mix" or "dope" materials. We must get a sufficiently long relaxation time so that we can switch and collect comfortably in cycle one, then switch into cycle two for dispersion of the freely collected energy in the collector. However, the relaxation time we get must also be short enough to allow quick discharge in the load, as soon as we switch the primary source away from the collector. Actually, we need a *degenerate semiconductor material* instead of plain copper.

**Degenerate Semiconductor Material:** A *semiconductor material* is intermediate between a good conductor and an insulator. It's a nonlinear material, and doped. A *degenerate semiconductor material* is one which has all its conduction bands filled with electrons, and so it thinks it is a conductor. That is, a degenerate semiconductor is essentially a doped conductor, so to speak. As you can see, we can increase the relaxation time in our "conductors" connected to the source by making them of *degenerate semiconductor material*. What we're talking about is "doping" the copper in the wire, and in the collector, so that we can have plenty of time to collect, and switch, and discharge, and switch, and collect, etc.

Now in a doped conductor (degenerate semiconductor), we can tailor the relaxation time by tailoring the doping. We must dope the copper before we make the wire. Why would we wish to do that? We want to overcome the single problem that so far has defeated almost all the "overunity" researchers and inventors.

WHEN YOU CONNECT TO A SOURCE, YOU CAN ONLY EXTRACT CURRENT-FREE POTENTIAL -- FREE "TRAPPED EM ENERGY" -- DURING THE ELECTRON RELAXATION TIME IN THE CONNECTING CONDUCTORS AND SUCCEEDING CIRCUIT COMPONENTS. AFTER THAT, YOU'RE STEADILY EXTRACTING POWER, AND THE ENERGY EXTRACTED FROM THE SOURCE IS BEING PARTIALLY DISSIPATED IN THE RESISTANCE/LOADING OF THE CIRCUIT, AND PARTIALLY DISSIPATED IN THE INTERNAL RESISTANCE OF THE SOURCE. IN THE LATTER DISSIPATION, YOU'RE ALSO DISSIPATING YOUR SOURCE BY DOING WORK ON IT INTERNALLY TO KILL IT.

**Good Copper Wire: Bane of Overunity Inventors:** Many destitute inventors, tinkering and fiddling with overunity devices, finally get something (a circuit or device) that does yield more work out than they had to input. At that point, they usually conclude that it's simply the specific circuit configuration and its conventional functioning that produces the overunity work. However, usually as soon as this configuration is more carefully built with very good materials, boom! It

isn't overunity anymore. The inventors and their assistants then desperately bang and clang away, getting more frustrated as the years pass. The investors get mad, sue for fraud, or get in all sorts of squabbles. The scientists who tested it and found it wanting, pooh-pooh the whole thing as a scam and a fraud, or just a seriously mistaken inventor. Scratch one more "overunity" device.

Most of these inventors got their successful effect (and possibly erratically) when they were struggling with inferior, usually old, usually corroded materials. Actually, the *more* inferior, the better. The more contaminated/doped, the better!

The moment you wire up your circuit with *good copper wire* connected between the battery or primary source and any kind of load including the distributed circuitry loading itself, you can forget about overunity. You will lose it in the copper, after the first  $1.5 \times 10^{-19}$  second!

Think of a really good conductor such as copper as an essentially linear material. Linear means energy conservative. Overunity can only be done with a highly nonlinear effect. So your "conductors" have to be made of nonlinear materials. In fact, they have to be made of degenerate semiconductor material. For the type of circuitry we are talking about, the copper has to be doped and then made into "doped copper" wiring. You also have to utilize the primary battery only to potentialize a collector (secondary battery/source), and then use this secondary battery source to conventionally power the load *while also killing itself*.

**The Wiring And the Collector Must Be of Degenerate Semiconductor (DSC) Material.**<sup>26</sup> A good materials scientist/engineer, together with a decent electrodynamicist, can readily design and tailor some doped copper wiring so that the material in the wiring is a degenerate semiconductor material, with a target (desired) relaxation time. That's what you should use to make the wiring to connect up your source to the collector with, and that type of material is also what you use in your collector. You can use either a coil or a capacitor as the collector, but its "conductive" material has to be degenerate semiconductor material -- in short, it must be doped to have the proper relaxation time. From the collector to the load, however, obviously you want to use a good conductor material. Ordinary copper will do nicely there.

Once you do that, you're in business. When making the DSC material, simply tailor the relaxation time to something which is easily switched. For example, take one millisecond. With a relaxation time of that long, switching is easy. In fact, one could even use good mechanical switching. Or easily use inexpensive ordinary solid state switching, without having to go all the way to nanosecond switching.

Then, in the collector, you calculate the number of "trapped coulombs" you have. Take the "trapped voltage" (current-free potential's energy density per coulomb) you extract from the source during the electron relaxation time after the collector is connected. Multiply the number of trapped coulombs in the collector by the trapped voltage during collection, and you have the amount of energy in joules that you extract FOR FREE, without paying for it, from the source *during every collection cycle*.

### **Sources, Collectors, and Power**

**Tapping Vacuum Energy.** You're getting the excess electrical energy directly from the vacuum, as we briefly pointed out above. The vacuum will freely replenish all the "trapped voltage" you extract from the primary source during the electron relaxation time. It won't replenish a single bit of "dissipated voltage" (power) you extract from the source.

Note that the same considerations apply in the collector. It's got to have a somewhat longer electron relaxation time. Its electrons stay "unrelaxed" during the collection cycle, and allow for some additional switching time to connect to the load. The "trapped voltage" across the collector multiplied by the number of trapped coulombs in it, gives the number of joules of FREE EM

ENERGY you extract and get into and onto the collector (the shovel). In other words, that's your "shovelful of coal." You then throw the "shovelful" onto the fire/load -- you simply disconnect the collector from the primary source and connect it across the external load. The collector (secondary battery) now powers the load and its own internal resistance, "killing" itself while furnishing the energy for powering the external load as well.

**The Source Can Be Almost Anything:** You can use as a source a simple elevated wire, to "tap" potential from the 200-300 volts/meter between earth and ionosphere. Here again, you need to utilize calibrated, doped wire.

Finally, you must adjust the repetition switching in accordance with the discharge time through the load. In other words, you have a serial process as follows:

- (1) extract trapped energy (potential) from the source onto the collector,  $\Delta t_1$ .
- (2) Switch the collector off the source, onto the load, during time  $\Delta t_2$ .
- (3) Wait while the collected energy in the collector discharges through the load, during time  $\Delta t_3$ .
- (4) Switch the collector back off the load and onto the potential source, during time  $\Delta t_4$ . That completes one cycle.

The serial timing simply is  $[\Delta t_1 + \Delta t_2 + \Delta t_3 + \Delta t_4]$ .

If you balance all the doping and the materials design, and correlate the switching, you can get all the free energy you wish. Properly utilized, a single car battery can be used to power an electric automobile indefinitely. Or even to power a battleship. In the real world, of course, you will inevitably have a tiny bit of loss as you go, because there's a finite (though high) resistance between the two poles of your battery. Handling that is a piece of cake. Simply run a separate little collection circuit to collect a little bit of trapped EM energy from the slowly leaking source, and ever so often feed the collected energy back into the battery as power, to "reseparate" the charges (charge the battery) and replace the small amount of the primary source's potential gradient that has been lost. The battery, load, and "trickle charger" then become a closed-circuit free-energy source that will last for years and years.

**Limited Only By One's Imagination:** Of course you can see many variants; this is just the "master key." You can have multiple collectors, collecting trapped energy simultaneously or in sequence off a single source, and pooling their collected energy to more powerfully power the load. You can utilize a very high "voltage", such as in the Swiss electrostatic overunity device, to increase the energy collected per coulomb in each switching (in each shovelful) in accord with equation [8]. For a battery, you can set a separate little collector/load device to trickle-charge the battery, overcoming the small normal "leakage current" that does occur in batteries and in real circuits and devices. The opportunities are endless. You can put in a unit to take mostly only power-free energy from the "power line" feeding your business or home, reducing your utility bill by -- say -- 90%. Or you can simply build a small home power unit to do the whole job, for only a few hundred dollars. *This simple secret can be used to power the world, cheaply and cleanly, and to clean up the biosphere.*

## **Conclusion**

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Well, there you have it. I've given you the benefit of what required most of my adult life to discover. The definitions advanced in this paper are rigorous. It took years of sweat and tears to

come up with them. They're simple, but they will change your entire understanding of electromagnetics, power, and energy once you grasp them. Please read them, and ponder them, several times. One or two readings will not be sufficient to fully grasp what is said here.

Also, hopefully, by this time, the reader is beginning to experience the same emotions as I experienced when I finally discovered how simple it all really was. First one wants to *laugh* for about two hours at how truly ignorant we've all been. Then one wants to *cry* for about two hours for the same reason. This could all have been done a century ago, *if we had ever really understood electromagnetics*.

We've had this electromagnetics around for over 100 years -- Maxwell's book was published in 1873. We got it wrong, starting right with Maxwell and his use of the material ether, which was almost universally assumed at the time. Still, by using quaternions, Maxwell succeeded in packing a great deal more in the model than even he himself recognized. When the vector aspects interacted to form a zero resultant *translationally*, those active interactants were still in there and still fighting and interacting. The scalar component of the quaternion remained, and infolded those struggling vectors and functions of them inside itself. In short, it captured the case where the electromagnetic energies are involved in translation actions which nullify each other translationally (electromagnetically). However, the energies are still in there in the continuing interactants inside the zero vector resultant. As such, they are trapped EM energy. And it is the trapped EM energy inside a mass -- not the mass per se -- which is responsible for gravitation. In other words, *Maxwell's theory already correctly captured the unification of the gravitational field and the electromagnetic field in 1873*.

Then Heaviside et al forced Maxwell's theory into a vector framework, throwing out the scalar component, and discarding the unification of gravitation and electromagnetics along with it. Serious errors were made and still exist in many of the fundamental definitions; in fact, many of them aren't definitions at all. Nearly every engineer and physicist can readily calculate potentials -- *all*, of course, on the "dissipation" side where the potentials are actually the amount of potential that was collected upon a collector and then dissipated. I could find hardly a single physicist who really knew what a scalar potential was prior to a finite amount being collected and dissipated as voltage. Yet 99% of them firmly believed they understood the potential.

So now you have the results of this researcher's long and arduous quest for the golden fleece. Please go forward with it, to make this a better and cleaner world for everyone.

Just remember that the control and use of energy is personal power. The control and use of absolute energy is the control and use of absolute personal power. In the old adage, power corrupts and absolute power corrupts absolutely.

Please use it wisely.

## **NOTES AND REFERENCES**

1. For a good discussion of the modern quantum mechanical view of the vacuum, see I. J. R. Aitchison, "Nothing's plenty: the vacuum in modern field theory," Contemporary Physics, 26(4), 1985, p. 333-391. See also T. D. Lee, Particle Physics and Introduction to Field Theory, Harwood Academic Publishers, New York, 1981 -- particularly Chapter 16, "Vacuum as the source of asymmetry." See Timothy Boyer, "The classical vacuum," Scientific American, Aug. 1985, p. 70; Walter Greiner and Joseph Hamilton, "Is the Vacuum really Empty?", American Scientist, Mar.-Apr. 1980, p. 154; Jack S. Greenberg and Walter Greiner, "Search for the sparking of the vacuum," Physics Today, Aug. 1982, p. 24-32; Richard E. Prange and Peter Strance, "The superconducting vacuum," American Journal of Physics, 52(1), Jan. 1984, p. 19-21; R. Jackiw and J.R. Schrieffer, "The decay of the vacuum," Nuclear Physics B, Vol. 190,

1981, p. 944. See Paul Davies, Superforce, Simon and Schuster, 1984 for a layman's overview of modern physics, including the modern view of the vacuum.

2. E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. Since the scalar potential actually consists totally of a set of hidden bidirectional EM waves, then *scalar interferometry* is possible, and not just an oxymoron as it would seem without considering the inner wave structure of the scalar potential. Two scalar potentials (each of which is a multi-biwave set) can interfere; it is just a special kind of multiple wave interferometry between their internal wave compositions. This is a major point of profound impact on physics. Whittaker in fact showed that *all classical EM* could be replaced by such scalar EM potential interferometry. See E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Further, scalar interferometry has been proven; today it is called the Aharonov-Bohm Effect. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 458-491. For confirmation and discussion, see Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm Effect," Physics Today, 39(1), Jan. 1986, p. 17-20. For an extensive discussion of the Aharonov-bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," Reviews of Modern Physics, 57(2), April 1985. Modern scientists have generally been unaware of the inner wave structure of the interfering potentials and have utilized only quantum mechanical theory for the interference. Consequently, they have been able to experimentally establish the AB effect for only a few thousand Angstroms distance. With the Whittaker formulation, the AB effect becomes distant-independent, because the necessary potentials can be fabricated as laser-like beams, simply by assembling the proper Whittaker multibeam set. Also, Ignatovich pointed out that the Schroedinger potential can also be decomposed into just such an internal bidirectional EM wave set. See V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

3. See Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," Journal of Mathematical Physics, Vol. 26, 1985, p. 861; "Localized Transmission of Wave Energy," Proc. SPIE, Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts, 1989, p. 396-397; "Localized Transmission of Electromagnetic Energy," Physical Review A, Vol. 39, p. 2005; "Localized Wave Transmission Physics and Engineering," Physical Review A, 1992, (in Press); "Localized wave transmission physics and engineering," Proc. SPIE Conference on Intense Microwave and Particle Beams II, Los Angeles, CA, vol. 1407, Jan. 1991, p. 375-386. See Richard W. Ziolkowski, Amr M. Shaarawi, and Ioannis M. Besieris, Nuclear Physics B (Proc. Suppl.), Vol. 6, 1989, p. 255-258; R.W. Ziolkowski, and D.K. Lewis, D.K., "Verification of the Localized Wave Transmission Effect," Journal of Applied Physics, Vol. 68, 1990, p.6083; Richard W. Ziolkowski, Ioannis M. Besieris, and Amr M. Shaarawi, "Localized Wave Representations of Acoustics and Electromagnetic Radiation," Proceedings of the IEEE, 79(10), Oct. 1991, p. 1371-1378; I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "A bidirectional travelling plane wave representation of exact solutions of the scalar wave equation," Journal of Mathematical Physics, 30(6), 1989, p. 806; A.M. Shaarawi, I.M. Besieris, and R.W. Ziolkowski, "A novel approach to the synthesis of nondispersive wave packet solutions to the Klein-Gordon and the Dirac equations," Journal of Mathematical Physics, 31(10), 1990, p. 2511; "A nondispersive wave packet representation of photons and the wave-particle duality of light," UCRL-101694, Lawrence Livermore National Laboratory, Livermore, CA, 1989; "Diffraction of a classical wave packet in a two slit interference experiment," UCRL-100756, Lawrence Livermore National Laboratory, Livermore, CA 1989; "Localized energy pulse trains launched from an open, semi-infinite, circular waveguide," Journal of Applied Physics, 65(2), 1989, p. 805; R.W. Ziolkowski, D.K. Lewis and B.D. Cook, "Experimental verification of the localized wave transmission effect," Physical Review Letters, 62(2), 1989, p. 147; R.W. Ziolkowski and D.K. Lewis, "Verification of the localized wave transmission effect," Journal of Applied Physics, 68(12), 1990, p. 6083; M.K. Tippet and R.W. Ziolkowski, "A



bidirectional wave transformation of the cold plasma equations," Journal of Mathematical Physics, 32(2) 1991, p. 488; A.M. Vengsarkar, I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "Localized energy pulses in optical fiber waveguides: Closed-form approximate solutions," Journal of the Optical Society of America A, 1991.

4. For a precise statement of the distortion correction theorem, see Amnon Yariv, Optical Electronics, 3rd Ed., Holt, Rinehart and Winston, New York, 1985, p. 500-501.

5. Both wave and antiwave co-exist in the vacuum simultaneously, forming a stress wave. The entity that is stressed is the rate of flow of time. In the common interaction with matter, the time-forward half of the stress wave normally interacts with the electron shells of the atom, giving electron translations forces. The time-reversed or anti-wave half interacts with the nucleus, giving the Newtonian 3rd law reaction (recoil) forces. The so-called "EM wave" in vacuum is a *gravitational* wave. It is a wave of oscillation of the rate of flow of time. It is rather like a sound wave in air, as Tesla pointed out, and it is a longitudinal wave, not a transverse "string" wave.

6. As pointed out by Nikola Tesla. Tesla was correct, and all the textbooks with their transverse "string" waves are in error. *There are no strings in the vacuum!*

7. E.g., see Clayton R. Paul and Syed A. Nasar, Introduction to Electromagnetic Fields, 2nd Ed., McGraw-Hill, New York, 1982, p. 113.

8. E.g., see Clayton R. Paul and Syed A. Nasar, *ibid.*, p. 100-101. See also Raymond A. Serway, Physics For Scientists And Engineers, With Modern Physics, Saunders College Publishing, Philadelphia, PA, 3rd Ed., Updated Version, 1992, p. 752-755.

9. Sommerfield's theory of metallic conduction was based on Drude's concept that the outer valence electrons of a conductor, which do not form crystal bonds, are free to migrate through the crystalline lattice structure, and so to form an electron gas. At room temperature, by quantum mechanical considerations, these free electrons are moving randomly, but at an average velocity on the order of  $10^6$  meters per sec. E.g., see Martin A. Plonus, Applied Electromagnetics, McGraw Hill, New York, 1978, p. 54-58, 62-3, 376-7. If you wish to know just how much power exchange is driving the collisions of the electron gas in a copper wire, here is an illustration. In one cubic centimeter of copper wire, the power exchange in and out of the electron gas is some 4 billion billion watts. That's the equivalent of 4 billion large electric power plants, each of 1,000 megawatt capacity. And one cubic centimeter of copper is a lump about the size of the end of our little finger.

10. E. g., see Raymond A. Serway, *ibid.*, p. 743-744 for a discussion and calculation of the electron drift velocity in copper.

11. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. 1, 1963, p. 2-4. In the classical EM theory launched by Maxwell and later modified by Heaviside et al, this problem did not exist for the original theoretical formulation. In that formulation by Maxwell, and continued by Heaviside, a material ether is assumed for the model. The Michelson-Morley experiments of 1887 destroyed the notion of the material ether, but the classical electromagnetics model has never been corrected to rectify its very serious foundations flaw in this respect.

12. Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, 1963, p. 283-287. Note on p. 283 that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. In spite of this, most classical electrodynamicists continue to adhere to the notion that the EM field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field. E.g., see J.D. Jackson, Classical Electrodynamics, 2nd Ed., John Wiley & Sons, New York, 1975, p. 249. Note that holding such a concept is tantamount to

holding on to the material ether, and assuming that the vacuum itself is "measurable" or "observable."

13. The formula  $F = ma$  is simply an algorithm for calculating the magnitude of the force. It states that "the magnitude of the force is equal to the magnitude of mass that is accelerating, multiplied by the magnitude of the acceleration." No such "equals" formula is a definition; it is only a calculational algorithm.

14. This falsifies one of the assumptions in the common notion of the scalar potential; that its gradient in vacuum is a force field. Let us falsify another part of the conventional concept of the potential. Take the notion of forcibly pushing in "against the field" of a trapped charge, a unit charge from infinity. At any point you stop, the work  $n$  you have done on the unit charge is equal to the value of the potential, so it is said. Actually, you pushed in a one-coulomb collector, and have collected and dissipated as work  $n$  joules of energy on that one coulomb. In other words, the energy density of the potential there, if collected and dissipated on a collector, is  $n$ , where  $n$  is joules per coulomb (NOT joules!). To prove it: suppose we go out on 10,000 radials from that point, and push in from infinity 10,000 unit charges from infinity. Then, the total work done "against the potential gradient" ("field", in common language) is now 10,000  $n$ . This makes no sense at all from the conventional view (which carefully refrains from multiple collectors!). It makes good sense from our view of the potential as having infinite energy but a finite energy density. In that case, the more collectors, the more energy collected, for dispersal as work.

15. For a discussion, see Y. Aharonov and D. Bohm, 1959.

16. Nikola Tesla, "The True Wireless," Electrical Experimenter, May 1919, p. 87.

17. The power in the load is always the time rate of dissipation of energy that has just been freely collected by the load for dissipation.

18. One can foresee a day in the not too distant future when any power company continuing to do such an unthinkable thing will have a class action suit brought against it by its customers!

19. T. E. Bearden, "Mechanism for Long-Term Cumulative Biological Effects of EM Fields and Radiation," March 1993 (in preparation).

20. Precisely analogous to a heat pump's operation - which as is well-known can readily be "over unity" in its efficiency. The maximum efficiency of the heat pump is about 8.22. E.g., see David Halliday and Robert Resnick, Fundamentals of Physics, 3rd Edition Extended, John Wiley and Sons, New York, 1988, Volume 1, p. 510-519. Good heat pumps normally have about 4.0 efficiency.

21. External power in an electric circuit refers to the dissipation rate (in the circuit's external load) of the potential gradients on the activated/potentialized electrons. Internal power refers to the dissipation rate in the circuit's bipolarity source.

22. We call strong attention to T.W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," Annales de la Fondation Louis de Broglie, 16(1), No. 1, 1991, p. 23-41. In this important paper, Barrett shows that a higher topology EM, such as quaternion EM, allows many things to be accomplished with circuitry that are not apparent to a conventional vector or tensor analysis of that circuitry. He also shows the Nikola Tesla's circuits accomplished this higher topological functioning.

23. It is easy to test this. Connect several different wires to a single source of potential gradient. With respect to ground, the end of each one of those wires has the same potential gradient as does the original source with respect to ground. If you connect 10 wires to a single "100-volt" potential gradient source, you will have ten 100-volt potential gradients appear. You can use

each of these ten potential gradients as a primary source. From each of these new primary sources, you can branch ten more, and now have a hundred potential gradient sources. You can treat each of these hundred new sources now as a primary source. To each one, you can add a switcher, collector, and external load, and drive all 100 loads. Or instead, you can put ten switcher/collector/external load circuits with each of the hundred new primary sources, and power all 1,000 external loads. Energy/potential is free from any source, so long as you do not demand power from the same source.

24. Per Whittaker and Ziolkowski, this VPF exchange -- from consideration of its wave aspects -  
- consists of a harmonic series of bidirectional waves.

25. We are easily permitted to have free energy and violate the "local energy conservation law for a closed system." This is because the system is not closed, and so instead we must apply local energy conservation for an *open* system with a hidden source. In any given time interval, the energy taken (scattered) from the system as external work cannot exceed the sum of the unscattered trapped energy that was in the system initially and the unscattered energy that flowed into the system during that time interval.

26. You can actually do away with the separate collector, and utilize the doped copper DSC material itself as the collector. However, you will not be able to collect nearly so much energy in each collection cycle, for dissipating in the load in the subsequent work cycle.

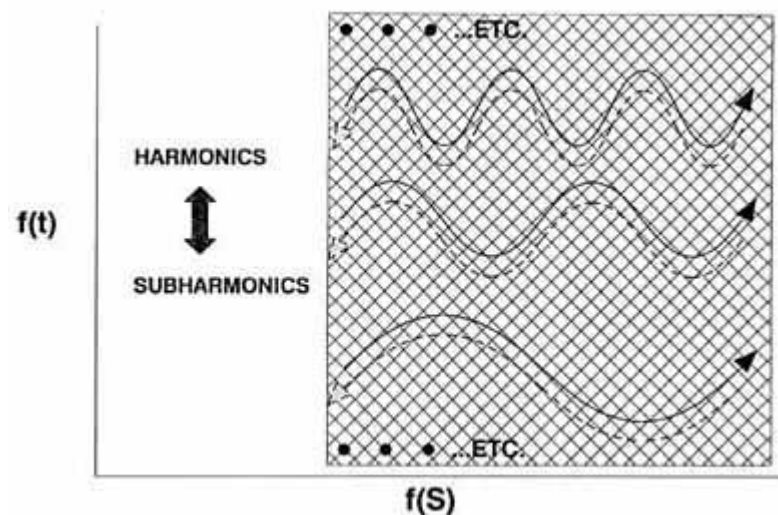


Figure 1a. Internal wave structure of the scalar potential.

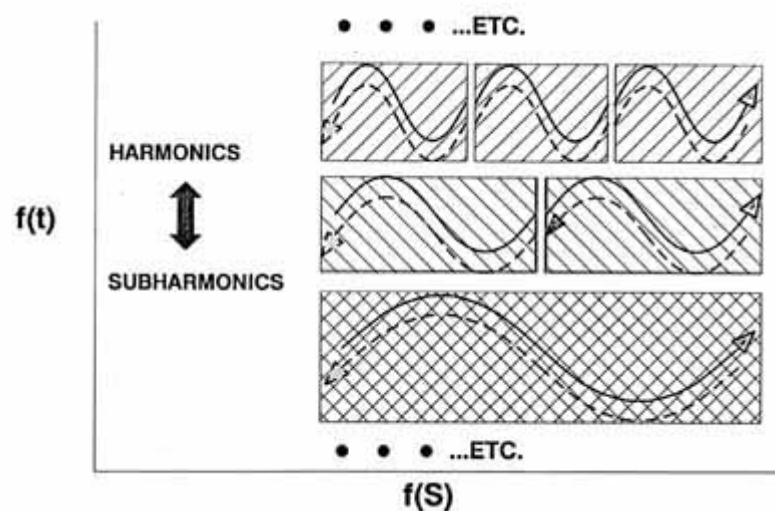
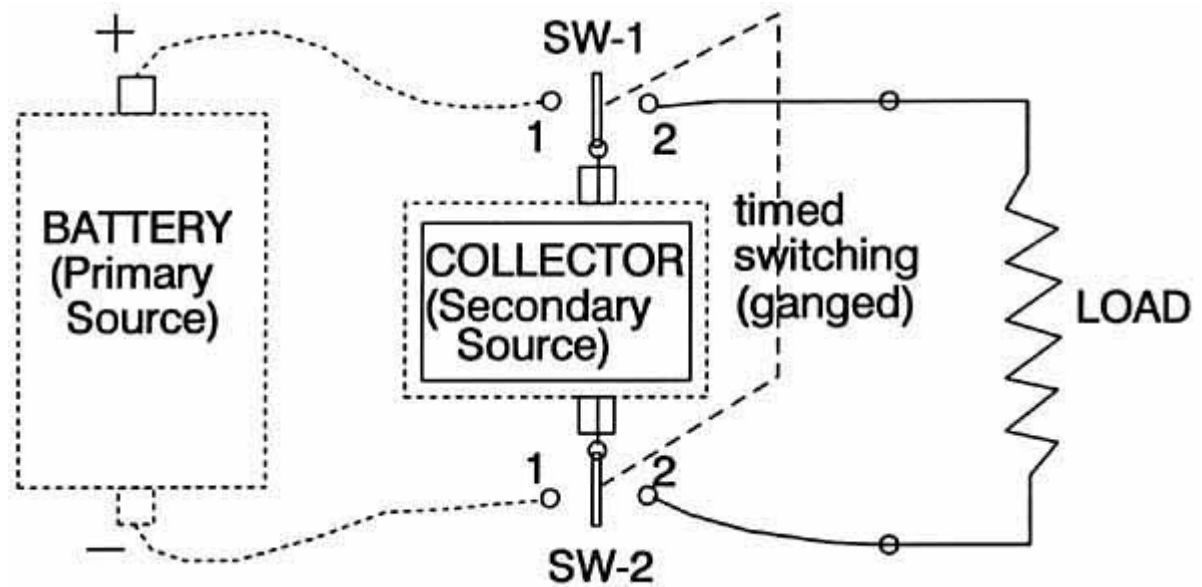


Figure 1b. Internal wave structure of the scalar potential (end).



Nondissipative components are shown by dotted lines.

Dissipative components are shown by solid lines.

Figure 2. The secret of extracting and using free energy.

[Additional Comments - 12 March 1993](#)

[Update - 5 February 1994](#)

[Update - 13 May 1994](#)

## ADDITIONAL COMMENT:

March 12, 1993

The present classical CEM model prescribes closed, energy-conservative type systems. If any electrical device works totally according to the accepted CEM model, it cannot and will not ever produce overunity. Simply put, you have excluded any hidden EM source that is freely replenished, and you have assumed continual killing of all energy input sources utilized. On the other hand, if one takes the view that the overunity electrical machines are possible after all, then -- *whether one is consciously aware of it or not* -- one has implied that classical CEM must somehow be substantially flawed. If it's flawed, then -- being a model -- some of its primary assumptions (postulates) and/or fundamental definitions must be in error. The proper place to go after "free electrical energy" is to rigorously examine CEM, over and over, until flaws are uncovered which allow a hidden, freely replenished source of input energy. In other words, one must find a way to "open" the electrical system to an inflow of energy from this source, without closing off the source. Until one finds such an "extension" of CEM, one has no model or concept which can reasonably be expected to provide overunity electrical energy output. Note also that, while the majority of the EM circuitry of an electrical overunity machine may obey CEM, at least one section -- where the source is freely tapped and the excess energy extracted -- must violate CEM.

I have spent many arduous years in this very process, right or wrong. The bottom line of my search is this: the only verified (by Whittaker and Ziolkowski) (WZ) "freely replenished river" of EM energy, that can act as the required "free energy" source for input to the would-be overunity electrical system, is the *potential*. But to understand the potential, completely new definitions are required for many entities, among them being energy, electrical charge, electrostatic scalar potential, voltage, etc. The present so-called "definitions" of these entities in CEM are either non-existent, entirely wrong, or quite unsatisfactory.

So far, the search has uncovered two major ways to tap the continually-replenished EM energy in the scalar EM potential:

(1) use of the inner WZ internal biwave structure of the potential as pump waves on/to a nonlinear material (such as the atomic nucleus), so that the nucleus becomes a pumped phase conjugate mirror. Then, by normal phase conjugate optical theory, simply inputting a small signal wave will produce an amplified phase conjugate replica (PCR) wave emitted from the mirror material, and this PCR will precisely backtrack the original input signal wave's path (see the *distortion correction theorem*) back out of the nucleus, out of the atom, and into the external circuit. There, the amplified PCR wave can be "filtered off" and sent to the external load, to power the load. The Floyd Sweet vacuum triode works precisely by this mechanism. Note particularly that Barrett has shown that higher topology EM (such as the original quaternion EM theory) can accomplish such "optical functioning" without the use of optical materials. To do Sweet's vacuum triode type process is thus theoretically possible with electrical circuitry alone, but one must have more than the current understanding of CEM, as Barrett pointed out. In other words, one can "open" any 4-space system by adding hyperspace (or subspace, if one insists on retaining Minkowski 4-space). One can thus have a hyperspatial source. Indeed, Ziolkowski and others have already pointed out that the WZ type decomposition of the scalar potential is essentially equivalent to having *complex sources*.

(2) The second way is to "trap the electron gas electrons" in a separate collector, feed "current-free potential" to the collector from a primary battery or other source of potential, and collect a bunch of excess energy (potential) in the collector's "penned up free electron 'horses'" waiting to carry the excess energy to the load and dissipate it there, once they have been released. Then, one switches the primary potential source away from the collector, while the "energy-loaded horses" are still trapped and straining at the bit, so that no work can be done -- by those agitated horses when they stampede out of there -- on the internal resistance of the primary

source, to destroy or reduce it. In the same switching action, the collector with its "snorting but still trapped electron horses" is switched across the load to form a totally separate circuit with it, having nothing at all to do with the original primary source of potential. Then, the agitated horses are released, and thunder out through the load, scattering their riders (excess energy) in all directions in the load, producing work/heat and powering the load. They will also charge on around to the reverse side of the collector, and kill its charge separation (kill its potential) as well, just as does any ordinary circuit.

The major disadvantage of method 1, as we presently have seen it done (however, check Barrett's demonstration that Tesla's patented circuitry is capable of doing it by circuitry alone), is that *time-reversed* electrical energy is produced. So Method 1 has some serious drawbacks. "Time-reversed energy stuff", which should stay in the atomic nucleus as Newtonian 3rd law reactions and 3rd-law energy exchanges, is dragged out. Unusual effects on biological systems can occur. Antigravity effects can occur. Other hidden processes in the universes, that affect the atomic nucleus, can be gated into the external circuitry, causing disaster. Monopoles can be deposited in the magnets, causing them to explode like hand grenades. Most of the new "massive time-reverse energy" phenomenology is still unknown. One cannot at this stage of ignorance adequately guarantee human safety. I presently don't see just how this kind of energy can pass an Underwriter Laboratories' testing and certification, until a lot more exhaustive work is done to understand the new phenomenology.

Method 2, however, yields ordinary, garden-variety, positive-time electrical energy. The method presented in the paper is my own discovery. No unusual time-reversed phenomena are involved. It would appear to be eminently practical to produce and certify power units based on Method 2. The phenomenology and risks are the same as for ordinary, time-forward power systems.

Method 2 has another unique characteristic: as a system, *all the subsystems are already in the literature and validated. They have just not previously been put together in this fashion.* So development of the system really represents an "integration" problem only, after one first does a little development of a proper degenerate semiconductor material (DSM). In other words, one first develops (and tests) the exact doping materials and percentage, to get a DSM material that is still a good conductor but has a relaxation time of -- say -- one tenth of a millisecond. One builds the wires from the battery to the collector out of this new DSM material. If one uses a capacitor for the collector, the plates must be made out of the new DSM material, not out of normal "pure conductor" material. Then one develops a switcher that switches in one tenth (or less) the relaxation time of the DSM, or in this case in one hundredth of a millisecond. That switching time, of course, is easy for any decent electronic technician or electronic engineer. One also develops a timing circuit that will (1) sense the status of the discharge of the collector energy through the load, and (2) trigger the switching at the correct times so that a smooth two-cycle (collect, discharge) process results. Note that the lengths of cycle one and cycle two are not necessarily equal at all. One may use multiple collectors/loads simultaneously, cascaded collectors/loads, etc. Hundreds of variations are possible and feasible.

It is not possible to do anything with this discovery in a normal manner. I would dearly like to be economically independent, so I could work full time in my efforts on free energy, antigravity, extended EM healing, cancer, etc. Many orthodox scientists will also fiercely resist this upstart notion of "overunity" electrical machines to the bitter end. When powerful economic interests realize one has such thing *for real*, one is certainly going to be stopped, jailed, or killed, or he may just "mysteriously vanish" and never be seen again.

So I just freely released and distributed my discovery of method 2, in the paper "The Final Secret of Free Energy". It is deliberately targeted toward technicians, junior engineers, and educated laymen. (The principles and definitions raised, however, can be debated to the nth degree by knowledgeable foundation scientists). The paper has already been distributed

worldwide. Now the *principles and definitions* are available to everyone. If they are in error, shortly that will be proven in spades. If they are correct, that will also be established shortly.

Anyone who wishes can develop and patent a particular application. There's no longer any way to stop this information from being disseminated and utilized. I hope that a flurry of development and patenting activity will result around the world. Get cheap, clean electrical energy to everyone. Bring on the electric auto, clean up the noxious auto exhausts, get rid of giant oil spills, and clean up the biosphere.

Tom Bearden



# Additional Information On *The Final Secret of Free Energy*

Update 15 February 1994  
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## Introduction

My associates and I have filed the first patent application on two electrical overunity processes and devices; one similar to what is outlined in *The Final Secret of Free Energy* [[Ref 1](#)] and an additional variation utilizing, as collectors, standard step-charged capacitors rather than degenerate semiconductor materials. In 60 to 90 days, we will have a very enlightening paper (more likely a book) ready on that. We also plan to file several more extremely fundamental overunity patent applications from additional phenomena and mechanisms that we have uncovered.

In this paper, it is assumed that the reader is familiar with the content of *The Final Secret of Free Energy*. Figure 1 shows the invention schematically, and we briefly summarize it as follows:

## Summary of the Invention

A method and apparatus for extracting bidirectional EM wave energy from the vacuum through the scalar potential gradient across the terminals of an electrical source, collecting the excess energy in a collector without entropy, then separately discharging the collected energy through a load to perform work, without sending the load current back through the primary source against its potential gradient; i.e., against its back emf. Removing the load current from the source thereby substantially reduces the production of work inside the source to dissipate its bipolarity; said internal dissipative work being well-known to be the cause of exhaustion of the source's ability to continue to furnish emf to the external circuit. By reduction of its internal dissipation, the source is enabled to furnish more energy for dissipation in the external load than is utilized to dissipate the source internally. Hence the source is enabled to operate with an overunity operational efficiency. The system permissibly operates as an "open" system, and extracts and utilizes excess EM energy from a free-flowing external source (the flux exchange between the surrounding vacuum and the bipolarity of the source), hence it can operate at an efficiency greater than unity without violation of the laws of physics, in a manner analogous to but entirely different from a heat pump. In this invention, it is not the purpose of the primary source to furnish current and dissipative power to the external circuit. The bipolarity of the source is utilized primarily as a dipole antenna to receive the bidirectional EM wave energy flow from the vacuum, and direct it without entropy through a switching unit to the collector. Conduction electrons in the collector are temporarily restrained while being overpotentialized by the excess energy being collected upon them. The collector and its overpotentialized electrons are then switched away from the primary source, and connected across the load as a separate circuit and closed current loop. The electrons in the collector and their excess energy are then automatically released to flow as current discharge through the load, releasing their excess energy to perform useful work in the load. The collector is then switched away from the load and back across the primary source, and another collection cycle is initiated. Iteration of the collection and discharge cycles provides power to the load. Additional collection and smoothing capacitances for smoothing the iterations and furnishing steady power to the load may be added as desired. The invention violates the

closed circuit practice of powering loads, but does not violate the conservation of energy law, the second law of thermodynamics, or any of the other known laws of physics.

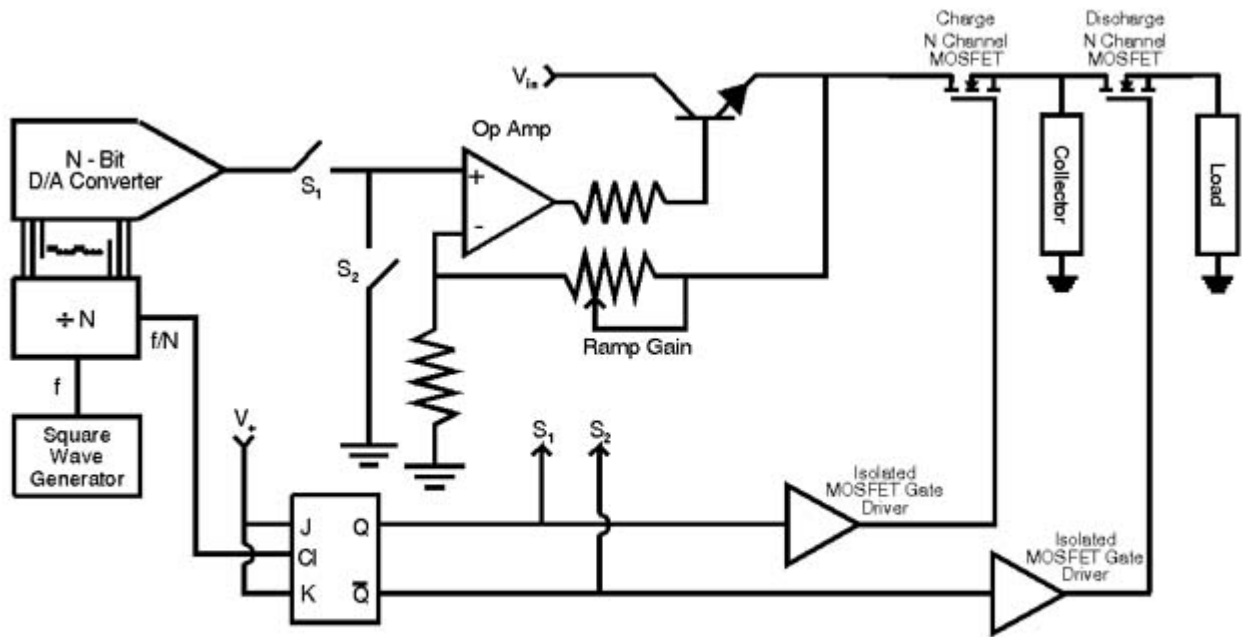


Figure 1A

**Figure 1a.** Type circuit utilized for ramp-up charging of a capacitor without work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

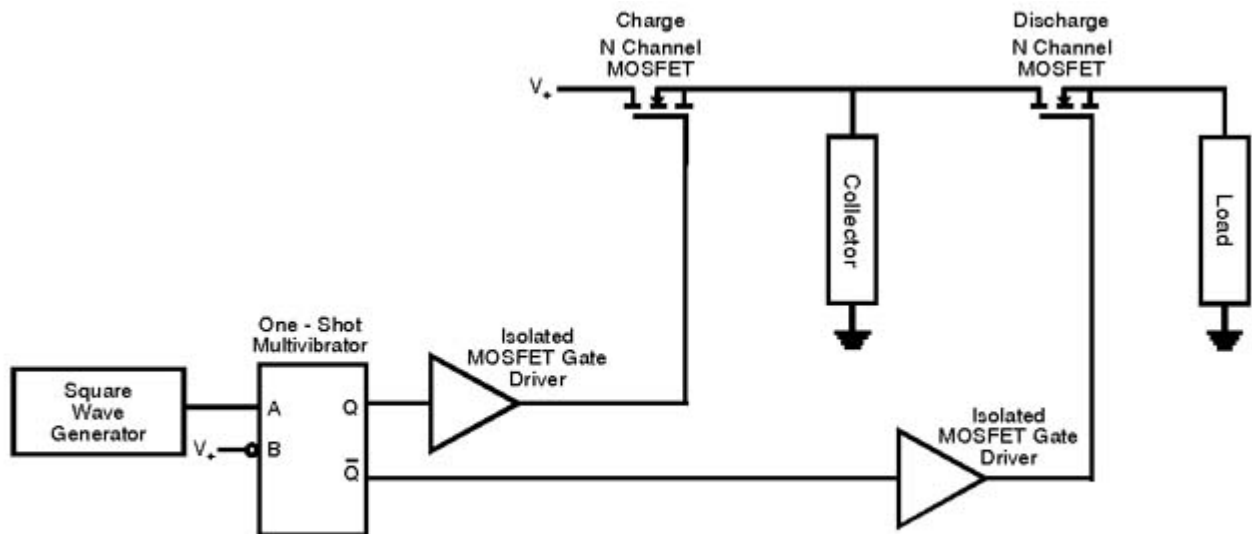


Figure 1B

**Figure 1b.** Type circuit for single pulse charging of a degenerative semiconductor collector without appreciable work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

## Use of Step-Charged Capacitor as the Collector

Fulfilling our search for a special material with the extended electron gas relaxation time for the collector, a material alloy composed of 98% aluminum and 2% iron is tentatively suggested. However, production of this alloy is particularly difficult, so we are still researching for a solution that is more easily manufactured.

Meanwhile, the necessity for using a special material for the collector has been bypassed by another procedure we have utilized. Rigorously one can use a *normal capacitor* as the collector, if one step-charges it in several hundred small incremental rectangular voltage steps (stair-step-charging). The proof that this can freely charge a capacitor with energy, without having to do appreciable work, is already known in the literature. You can charge the capacitor *without entropy* and essentially without drawing electron mass current. [[Ref 2](#),[Ref 3](#),[Ref 4](#),[Ref 5](#)]

Actually we consider the capacitor to be charged by *massless displacement current flow*, which for circuitry purposes we consider to be  $d\phi/dl$  -- a flow of pure potential (trapped EM energy) along a conductor or through the vacuum; i.e., under conditions where *mass displacement current flow* does not exist. [[Ref 6](#), [Ref 7](#)]

## Massless Displacement Current Is Freely Available From Any Source

The principle embodied in the invention is that one can extract all the free EM energy one wishes, from any electrical power source, as long as it is extracted via massless displacement current and not by *electron mass* flow current. [[Ref 8](#)] And one can freely collect this extracted energy from a source into an ordinary capacitor if one does it correctly, *because one can charge the capacitor via massless displacement current without expending any appreciable work inside the source to dissipate its dipolar separation of charges*.

## Every Electrical Source of Potential Is Already a Free Energy Source

We thus advance a revolutionary concept: all present power systems already utilize *free energy source-antennas*. However, the standard two-wire closed circuitry diabolically utilizes one-half the total free energy extracted by the source-antenna from the vacuum, to perform work inside the source-antenna to dissipate its dipolarity and hence to dissipate the *source-antenna (i.e. the receiver) itself*.

The source already acts as a "dipolar antenna" to continually receive "scalar potential" current  $d\phi/dl$  (massless displacement current) from the vacuum. [[Ref 9](#)] Previously scientists and engineers have simply ignored this special massless EM energy influx. For load-free (i.e., mass-current-free) conditions,  $(d\phi/dl)$  is continually received from the vacuum *by any dipole* (i.e., by any *dipolar source-as-an-antenna*), and the flowing energy is continually exchanged back and forth between the vacuum and the dipole.

This free energy exchange with the vacuum is also true of any two points in our circuit that possess an open-circuit voltage or potential difference between them. Two such points act as a dipole. Free energy dipolar antenna sources are everywhere; we just have to learn how to break the symmetry in their energy flux exchange with the vacuum, collect some of the freely flowing influx, and distribute that collected excess energy to an isolated load to *separately* power it.

In other words, we simply have to implement circuitry that operates analogous to the standard heat pump cycle.

# WHY PRESENT SYSTEMS HAVE COP < 1.0

Dissipative power inside source =  $V I_T$  and  $V I_T > F_L$

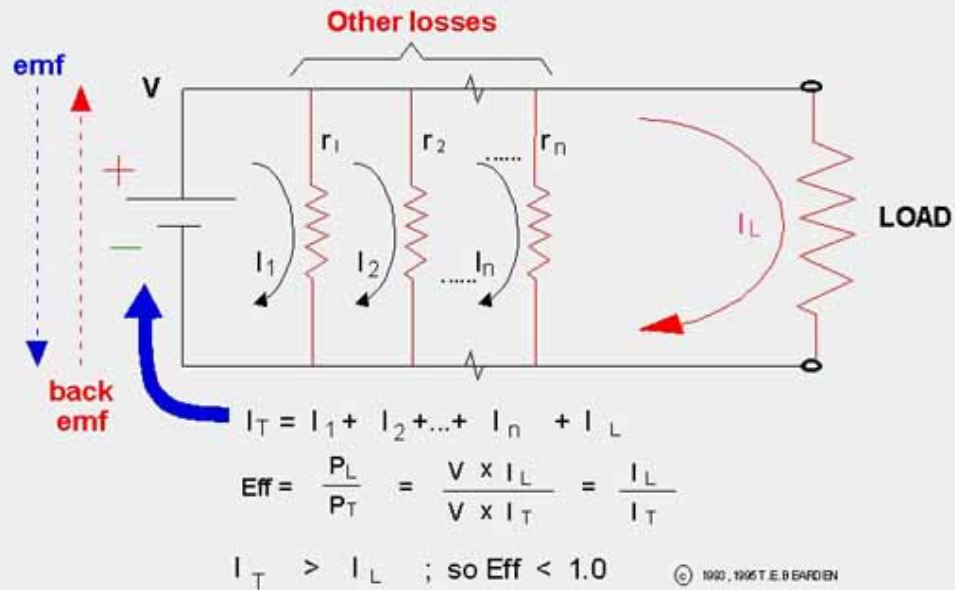


Figure 2. Why present electrical power systems have underunity operational efficiency.

## Conventional 2-Wire Closed Circuit Operation

In the conventional 2-wire system a load is added to the source-antenna, allowing circulation of electron current in a closed circuit through the load and then through the ground return line back to and through the dipolar source-antenna. The only useful reasons for this "closed circulation" of the electrons are (1) it is simple, *easy*, habitual, and accepted, (2) all our components, instruments, and methodologies are developed in accordance with this usage, (3) one uses the electrons as a *working material fluid* to receive, transport, and discharge excess EM energy, and (4) forcing the electrons back through the back emf *reloads* the spent electrons again with excess EM energy in the form of little  $\nabla\phi$ 's (excess trapped energy density) upon each recycled electron.

Some of the excess  $\nabla\phi$  collected upon the electrons is expended in the load as useful work, but one half of the total is expended in driving the spent (without excess  $\nabla\phi$ ) Consequently all conventional 2-wire circuits, which return *all external electron-flow current loops back through the source*, are always underunity devices, as is shown in Figure 2. Eerily these conventional sources are already free energy devices, which are unwittingly attached to circuitry specifically designed to utilize part of their freely received energy to deplete or destroy themselves, i.e., they are already *open systems receiving free energy from the vacuum, but they are hooked up and designed in a suicidal manner so as to use at least half of that freely extracted energy to re-close the system and shut off the influx of free energy*. Since at least some of the remaining half of the energy is lost in inefficiencies, frictional losses, etc., less than half the total free energy goes to the load. So there is always less useful work being done in the load than the destructive work being done inside the free-energy source-antenna to destroy it.

## Operational Efficiency

We define operational efficiency Alpha as the average power expended in the load to power it, divided by the average power expended inside the source to dissipate its dipolarity. If Alpha < 1, one has to externally furnish energy to do restorative work upon

the source to replace or offset that amount of destruction being done inside the source, if one wishes the source to continue to operate as an energy-receiving antenna. If  $\text{Alpha} > 1$ , then if the additional losses are minimal, the device can conceivably run itself while furnishing some energy to a load to produce useful work.

## **We Must Excise the Suicidal Closed Circuit To Achieve Overunity**

There is no mysticism in the overunity electrical device. The device is an open system that extracts excess energy from the vacuum, collects it, and transports it to the load to separately power the load. It is simply analogous to the standard heat pump cycle. It is also directly analogous to presently operating overunity systems such as windmills, waterwheels, solar cell arrays, and hydraulic turbines in a dam installation. All that we have done is to eliminate or dramatically reduce the standard cancerous mistake in conventional electrical power systems wherein much of the excess energy freely extracted from the vacuum by the already-overunity electrical source is then utilized to destroy the source's energy reception ability!

As we stated, in the conventional electrical device and circuitry, more destructive work is always done inside the source than is done usefully in the external load. Hence the conventional operational efficiency is always underunity.

### **Legitimate Overunity Systems Comply With Well-Known Requirements**

There are many alternative and well-known permissible free energy systems that operate at overunity operational efficiency: solar cells, windmills, hydraulic turbines, heat pumps, and water wheels, to name a few. All of these are open systems, receiving an influx of free energy from a natural energy flow, and collecting and gating some of that energy to be dissipated in a load to do useful work. All of them are permissible overunity devices, since (1) they are open systems, (2) they constantly receive a free energy influx from an external source, (3) they extract and collect some of this energy without dissipation, (4) they dissipate this collected energy in a load, and (5) the discharge process is totally separated and isolated from the "collection-from-the-source" process.

### **No Legitimate Overunity System Is Intentionally Made Self-Destructive**

Not a single one of these open overunity systems foolishly uses part of its freely extracted and collected energy to re-close the system and shut off its influx of free energy flow! What engineer would build a solar array such that, the moment the current started to flow, it powered a shutter arrangement to gradually close and shield off the solar array from the sun? Who would build a windmill so that, whenever the angled-blade assembly rotated in the wind to furnish power, a gearing feedback assembly also slowly caused the individual blades to rotate into a position parallel to the wind, thus stopping the windmill?

Yet this is precisely what the conventional electrical power system does with its external circuit. It deliberately utilizes half of the freely extracted energy to re-close the system and shut off the free energy flow between the vacuum and the source-antenna, by destroying the receiver-antenna!

However, this "suicide circuit" practice is guaranteed to keep the power meter on your home or business, and to keep the meter on the gas pump for fueling your automobile. Perhaps one may be forgiven for suspecting that, at the deepest levels of financial control,

this may be the real purpose in seeing that the existing interpretation of classical EM stays "as is."

## **All Electrical Power Sources Are Already Free Energy Receiving Antennas**

All conventional electrical power systems already contain fully functional free energy systems in their source component. Each conventionally designed system is, however, deliberately suicidal, since part of the system's own energy is utilized to work against itself and destroy itself. This is primarily due to the preoccupation of engineers with power and work. They do not consider the source as an energy source, but as a power source. Power being the time-rate of performing work, and work being the dissipation of energy, they are thus naturally conditioned to think of the "dissipation of the source" as its natural functioning.

In fact, hardly a single one of them is aware that EM energy itself is a free-flowing process. Only a finite collector possesses a finite collection of EM energy. In nature, the potential gradients of all dipoles are already rivers of free-flowing EM energy exchange with those dipoles, where the energy density is freely furnished and is essentially free for the taking. It is mind-boggling that we have all been conditioned to extract this free energy furnished by nature and the creator, but to always utilize half of the extracted energy to destroy the receiver-antenna and thus strangle the flow!

In our work, we simply have excised this "self-destructive" cancer and reworked the circuitry so that only a minimal amount of the freely extracted energy is utilized for internal destruction of the source-antenna.

## **Thermodynamics and Open Overunity Systems Not In Equilibrium**

In our approach we have an open system during every collection cycle, with an external source of energy and a continual energy influx. We have deliberately broken the local symmetry of the system's energy exchange with the vacuum, by spatially and temporally separating the energy collection and energy discharge phases. Overunity operational efficiency is permissible for such a system without violation of any of the laws of nature. Some of the influx of excess energy from the vacuum into the dipolar source antenna is transported without loss to the collector and collected. The collected energy in the collector is then separately discharged through the load, without any of it being discharged back inside the source-antenna. Note that we have broken local energy flow equilibrium but not global energy flow equilibrium.

The second law of thermodynamics, e.g., does not even apply to such an open system not in equilibrium. Classical thermodynamics cannot even compute the entropy of an open system not in thermodynamic equilibrium, as is well-known to thermodynamicists. [[Ref 10](#)]

What classical thermodynamics does have to say, is that such an open system must contain excess energy when compared to the closed system in equilibrium, because the closed system in equilibrium is in the maximum entropy condition. [[Ref 11](#)] Global conservation of energy is not violated, just as it is not violated in a windmill or in a heat pump, which are similar open systems. Local conservation of energy (which applies only to a closed system or to a system in total equilibrium) does not apply because the system is open and not in equilibrium.

## **Permissible Electrical Overunity Is Not Perpetual Motion**



An open system out of equilibrium need not conform to (1) the local (closed system, equilibrium conditions) conservation of energy nor to (2) the second law of thermodynamics (which assumes equilibrium conditions). It must and does conform to the global conservation of energy, just as does a waterwheel or windmill. We strongly stress that the overunity electrical device is not a "perpetuum mobile." [\[Ref 12\]](#) The electrical operations and systems we propose are perfectly permissible by the known laws of physics and do not violate any of them. We propose a permissible series of overunity electrical systems.

## The Heat Pump Analogy

In one way of viewing it, all we have done is utilize the potential as a more modern type of quantum mechanical fluid having hidden bidirectional flowing EM energy. [\[Ref 13\]](#), [Ref 14](#), [Ref 15](#), [Ref 16](#) QM already certifies that the potentials, not the force fields, are the primary causes of all EM phenomena. Contrary to classical EM theory, the force fields are effects in, on, and of the charged particles themselves. Consequently, if the potentials are the primary causes of all EM phenomena, then for free energy to perform work (free causes to collect and generate desired effects) we must turn to the potentials.

We have utilized a hookup and switching arrangement so that energy-free collection is totally separated from collected energy discharge in the load. In short, we have done what a normal heat pump does, when it uses the air with its thermal energy as a working energy-containing fluid. Consequently, overunity operational efficiency of analogous electrical devices is perfectly permissible, and not prohibited by the known laws of physics.

## An Electrical Power Source Is a Dipolar Antenna For Free Reception of Energy

An electrical power source is in fact only a dipolar antenna for reception of potential (hidden bidirectional Whittaker/Ziolkowski waves). All the current you run back through the back emf of the source, to perform dissipative work inside it, is something you yourself are doing to the source. It is not a priori a characteristic of the source!

If no work is done inside the source's internal bipolar separation of charges (i.e., if no electron or ion current is forced back up from the ground return line against the source-antenna's potential and therefore against its back emf), then the dipolar source-antenna will last essentially forever, or until something corrodes or breaks mechanically.

The flow exchange of energy between the vacuum and the dipolar source-antenna is freely driven by all the charges of the universe, in accordance with Puthoff's cosmological feedback loop. [\[Ref 17\]](#)

## Massless Displacement Current

Technically one is using massless displacement current to charge the capacitor, rather than electron mass flow current. It is real energy flow nonetheless; just in work-free, dissipation-free form. As is well-known, one plate of a capacitor already charges the other plate by just this very massless displacement current, transporting real EM energy across the gap between the plates in the process. The electrons themselves do not cross the gap.

Displacement current is already well-known to be "free" energy transport without any dissipation as power and work. By drawing massless displacement current only from the source-antenna instead of electron flow current, you can draw work-free, dissipation-free energy as long as you wish, as often as you wish, and as much as you wish, without ever



dissipating the source-antenna. You just have to collect it onto some trapped electrons or other charges, such as in a capacitor's plates, then switch the collected energy (charged capacitor) separately across a load, in a separate discharge circuit, to discharge through the load as work.

The real trick is to prevent the electrons in the circuit from moving and providing mass "energy dissipation" current inside the source during the collection process. In the original paper, we explained that this could be done by using as a collector a degenerate semiconductor material, with extended electron gas relaxation time. In this paper we have explained how this can be done by step-charging an ordinary capacitor as a collector. We have also included specific references proving (both experimentally and theoretically) that this is correct. With the requirement for special materials removed, there is no reason that a competent researcher cannot develop a step-charged capacitor device to prove it experimentally for himself or herself.

## **Requirement: Proof of Principle and Independent Test and Certification**

My associates and I are proceeding as rapidly as possible toward full-up "proof-of-principle" circuits for open release and certification or falsification by the scientific community and engineers at large. Soon we also expect to release to other researchers information on the kinds of new electrical phenomenology one meets in true overunity electrical devices. These are not in the textbook, at least with respect to electrical power systems. We give some indication of these phenomena below:

### **New Circuit Phenomena Must Be Mastered**

One meets unusual electrical phenomena in attempting to perform overunity electrical operations. For overunity, a priori one must "slip excess potential" through the circuit essentially without losses. That is, one must deliberately pass massless displacement currents through the circuit and at least through some of its components.

Solid-state switching components in particular exhibit unusual phenomena, to say the least, when excess potential is introduced into and through all their internal components inside modern semiconductors. An ordinary MOSFET, e.g., may have 25,000 separate internal components. It is as if someone crammed the entire electronic parts store inside it. Simple switches these semiconductors are not, when exposed to appreciable massless displacement current.

When one "slips in" some pure potential, by SWZ decomposition one has also slipped in some bidirectional EM pump waves. The nonlinear semiconductor materials will function as phase conjugate mirrors when suitably pumped, including at non-optical frequencies. Consequently pumped phase conjugate replicas, self-targeting, formation of quantum potentials, and modular variable effects sometimes begin to evidence. We will address and explain some of these effects in a future paper. For now, we simply state that they occur, and there is a host of extra phenomenology the experimenter may encounter.

However, an iron rule for the experimenter is that, for odd circuit behavior, first exhaust all "normal" causes before turning to the extraordinary causes. One will save oneself a great deal of grief by applying this Occam's razor.

Also in deliberately utilizing displacement current, one is actually employing an expanded, higher topology EM with additional degrees of freedom, similar to that pointed out by Barrett. [[Ref 18](#)] Consequently one encounters a host of additional higher topology EM

phenomenology. In particular one encounters nonlinear optical (NLO) functioning of the semiconductors at any and all frequencies, not just in optical bands.

## Overunity Electrical Devices Are Permissible By The Laws of Physics

The overunity electrical energy system is permissible by the laws of physics and is not in any manner perpetual motion. It simply extracts excess EM energy from an ubiquitous source, through a dipole as a receiver, and collects that excess energy, conducts it to the load, and separately dissipates it in the load to power the load, without using any of the collected energy to perform work inside the source to dissipate the source-antenna. It is directly analogous to a heat pump, which is well-known to perform at overunity operational efficiency under nominal conditions.

### In Conclusion

Primarily my associates and I believe we have corrected an ubiquitous error made in present power systems that prevents these systems from realizing their already-inherent overunity operational efficiency. We also firmly believe that the permissible electrical overunity device is an idea whose time has finally come.

### Notes and References

1. [T. E. Bearden, "The Final Secret of Free Energy,"](#) distributed over the Internet, Feb. 9, 1993. The paper was also published in Magnets, 7(5), pp. 4-26 (1993); in Explore!, 4(3/4), pp. 112-126 (1993), and in several other media.
2. For proof that you can charge an ordinary capacitor almost without entropy, see I. Fundaun, C. Reese, and H. H. Soonpaa, "Charging a Capacitor," American Journal of Physics, 60(11), pp. 1047-1048 (1992). A capacitor can be step-charged in small steps to dramatically reduce the entropy required to charge it. In the limit, a theoretically perfect capacitor can be fully charged without any electrical current or work at all, i.e., you can simply transport the excess energy density (the potential gradient) of the open circuit voltage of the source to the collector, and couple that  $\nabla\phi$  to the electrons trapped in the capacitor plates, without electric current from or through the source.
3. M. G. Calkin and D. Kiang, "Entropy Change and Reversibility," American Journal of Physics, 51(1), pp. 78-79 (1983).
4. F. Heinrich, "Entropy Change When Charging a Capacitor: A Demonstration Experiment," American Journal of Physics, 54(8), pp. 742-744 (1986).
5. V. K. Gupta, Gauri Shanker, and N.K. Sharma, "Reversibility and Step Processes: An Experiment for the Undergraduate Laboratory," American Journal of Physics, 52(10), pp. 945-947 (1984).
6. In most texts the treatment of displacement current is far from adequate. A better treatment than most is given by John D. Krauss, Electromagnetics, Fourth Edition, McGraw-Hill, New York, pp. 437-439, 547-549 (1992). Additional useful insight can be gained from David J. Griffiths, Introduction To Electrodynamics, Second Edition, Prentice-Hall, Englewood Cliffs, New Jersey, pp. 304-308 (1989). Problem 7.51 on p. 335 is also of direct interest, as is particularly the comment by Griffiths below the problem. Additional insight can be gained from David Halliday and Robert Resnick, with assistance by John Merrill, Fundamentals of Physics, Extended Third Edition (1988), John Wiley & Sons, New York, vol. 2, Article 37-4: Displacement Current, pp. 836-837, 839-841. The standard notion is to (1) retain the continuity of current, thus modifying and salvaging Ampere's law, (2) the displacement current is non-physical, i.e., it does not involve the transfer of charged mass, (3) focus primarily upon magnetostatics as to the results achievable by the displacement current, (4) retain the notion of  $\nabla\phi$  as E, a force field, thereby

focusing the notion of displacement current upon the change of the E field without the flow of charged mass, and (5) retain the confusion between electrical charge and charged mass that is inherent in the terms "charge", "current", etc. On p. 836 Halliday and Resnick point out that the displacement current is not derived per se, but is a "fit" based upon symmetry arguments, and it must stand or fall simply on whether or not its predictions agree with experiment. On the same page the displacement current is taken to be a linear function of  $d\phi/dt$ . For flow along a circuit where there is no electron mass current, it seems appropriate to replace  $d\phi/dt$  by  $d\phi/dl$ . It is also strongly indicated that one should clearly distinguish between charged mass current flow and the flow of massless charge, which is the approach we have taken.

A final indication of the way conventional scientists tend to regard displacement current is given by Martin A. Plonus, Applied Electromagnetics, McGraw-Hill, New York, pp. 446-448 (1978). Here Plonus uses the prevailing notion of the E field being altered by the flow of massless displacement current. As can be seen, the displacement current is relegated almost to a curiosity of capacitors, and not really too essential except just to "balance the books" and retain Ampere's current continuity.

We now wish to point out something very subtle but very rigorous. CEM erroneously uses  $E = -\nabla\phi$  to equate a mass-free potential gradient with a mass-containing force field. This "E-field" only exists at a point when there is a point-coulomb of electrical charged mass at the point. The real version of this equation should be  $E = -[(\nabla\phi) \bullet q]/|q|$ , where  $\nabla\phi$  is the potential gradient coupled directly to the charged point-mass at the point,  $q$  is the number of coulombs of charged mass at the point,  $q/|q|$  is one coulomb of charged mass, and  $E$  now is properly the force on and of each coulomb of the collected charged mass at the point.

Viewed in this manner, one can now see that the E field may be altered by flow of additional charged mass  $q$ , or by flow of massless additional  $\nabla\phi$ , or both. This is now in agreement with the manner in which it is approached in CEM, but more rigorous. Essentially it states we may increase the total "charge" (potential) at a point by either (1) moving in additional charged masses by use of a conventional current, or (2) moving in additional massless charge (potential) without any additional change in mass, or (3) a combination of the above.

However, let us apply this to a single charged particle or to a fixed number of them. No one seems to have noticed that the notion of altering the E-field of the collected point-charges at a point via method #2, i.e. by a flow of massless displacement current onto the fundamental charged particles themselves, a priori requires the electrical charge of each fundamental particle to change. Hence it **falsifies the notion of quantization of charge**.

Also, no one seems to have noticed the electric power implications: if it is known that one can charge a capacitor purely by displacement current, then one can charge up the capacitor with energy, without any dissipation of the source, because only charged mass current through the back emf of the source does that. So one can then disconnect the charged capacitor and separately connect it in a closed circuit with a load, to discharge through the load and furnish free work in the load (free in the sense that no dissipation of the primary source occurred in either the collection of the energy or in discharge of the collected energy through the load as useful work). Free energy, overunity electrical devices, etc. should then be readily apparent and permissible, from the known nature of displacement current and capacitors alone.

7. Maxwell assumed a material ether, which was assumed to be a thin material fluid filling all space. Hence force (which must have mass as a component due to its definition  $F = d(mv)/dt$ ) could be modeled as existing in the Maxwellian ether, for there was already thin matter present everywhere. Hence in Maxwell's EM the incorrect notion resulted that force fields existed in the vacuum. Oliver Heaviside continued this erroneous assumption, since in fact he hated the potentials, regarded them as mystical, and stated that they should be "...murdered from the theory." Also, electricity was thought to be a similar thin material fluid. So the material electric fluid could and did flow through the fluid vacuum also, giving the notion of the material electric flux density for  $D$ . Consequently, the units of  $D$  are coulombs (charged mass rate of flow) per square meter. Rigorously, that material  $D$  flux exists only on and of charged mass that moves; it cannot and does not exist in vacuum. Only potentials and potential gradients exist in vacuum. However, after Maxwell's formation of his theory, the Michelson-Morley experiment destroyed the material ether (not the ether per se, but its material nature). So electricians then simply proclaimed that they were no longer using the material ether, and that such did not exist! Not a single Maxwell/Heaviside equation was changed. The material ether is still very much assumed in classical EM (CEM) theory, and so the theory is accordingly very seriously flawed. Since CEM also has no adequate definition for either electric charge or the scalar potential, the problem is confounded.

To clarify this problem, one must separate the notion of electric charge from the notion of mass. The electrical charge of a charged mass is the virtual photon flux exchange between the surrounding vacuum and that mass. Since a virtual photon flux is just a scalar potential, the electron's massless electrical charge is simply its scalar potential. It can now be seen that, if we forcibly remove the notion of "mass" from  $D$  in the vacuum, or in a charged material medium where the charged masses cannot move, then the "material electric flux concept" portion of  $D$  turns into  $d\phi/dt$ , a change in the nonmaterial electric flux. However,  $D$  is a vector and hence has a "net flux" spatial directional aspect which  $d\phi/dt$  alone does not possess. It follows that the value of  $d\phi/dt$  at a spatial point actually represents the result of change of the value of  $\phi$  at that point, as a function of time. Thus a directional operator must first be invoked upon  $\phi$  at the point, to provide a direction for the spatial  $\phi$ -current after the  $d/dt$  operator is invoked. The appropriate operator to give directionality to  $\phi$  is  $\nabla$ , so that  $D$  in vacuum or in an electron-current-free charged medium becomes a function of  $d/dt(-\nabla\phi)$ . Conventionally, the use in the literature of  $E = -\nabla\phi$  immediately provides that  $d/dt(-\nabla\phi)$  at a point results in  $dE/dt$ , or the time rate of change of the E-field at that point. If no distinction is made between charged mass current flow and massless charge current flow, this would be true in either vacuum or material media. However, we wish to specifically distinguish between massive displacement current and massless displacement current. So we point out that the increase  $dE/dt$  in the magnitude of the E-field at, on, and of a charged particle at a point, can be due to either (1) the flow of mass current to build up the number of point coulombs at that given point, where each coulomb has a fixed massless charge (potential), or (2) the flow of massless current  $d/dt(-\nabla\phi)$  so as to alter the value of  $\phi$  at that point, evidenced by a fixed number of coulombs of charged particles, **each of which has altered its individual potential and therefore its individual massless electrical charge.**

So what "flows" when the charged masses are frozen or absent is simply a current of scalar potential, resulting in a change of the potential upon fixed point charges of  $d\phi/dt$ . This is what crosses between the plates of a capacitor, e.g., which is where the notion of "displacement current" originated in the first place. (See, e.g., Halliday and Resnick, 1988, *ibid.*, p. 836, Sample Problem 1, for expression of the displacement current as  $d\phi/dt$ , neglecting constants of proportionality). This is also

what flows when one connects multiple open circuit pairs of conductors to a source.

It remains to examine Maxwell's equation  $\nabla \cdot \mathbf{D} = \rho_v$ . If mass displacement current cannot flow, then there exists no divergence of the mass current portion of  $\mathbf{D}$ . However, massless displacement current can still flow, and there can exist divergence of that component. There are now three aspects to that equation: (1) the case in the vacuum, where there exists no physical  $\rho$  and hence no  $\rho_v$  as such because of the absence of mass, (2) the case in a material medium, which is the normal case already treated in the standard equation and need not be further addressed, and (3) the case in a material medium where, nonetheless, physical charged masses such as electrons cannot move, but massless charge currents may still move. Only cases 1 and 3 need to be addressed, and they have the same treatment.

We address the one dimensional case, which is sufficient for circuit current flow considerations. First we replace  $\mathbf{D}$  with  $(\mathbf{D}\phi + \mathbf{D}\rho)$ , where the first term is the massless displacement current and the second term is the massive displacement current. In other words, we account separately for charged mass flow and for massless charge flow. Similarly, we express  $\rho_v$  as two components, one massive and one massless, so that  $\rho_v = d/dl(\phi + m_v)$ . For case 1 and case 3 we make  $m_v = 0$  and  $\mathbf{D}\rho = 0$ . For those cases, we have  $\nabla \cdot \mathbf{D} = \nabla \cdot \mathbf{D}\phi = d\phi/dl$  (since current along a wire is a one-dimensional flow). We specifically note that  $\phi$ ,  $\mathbf{D}\phi$ ,  $\nabla \cdot \mathbf{D}\phi$ , and  $d\phi/dl$  are not necessarily conserved quantities, since  $\phi$  is mathematically decomposed into bidirectional EM waves, and is hence a freely flowing process. When symmetry is broken so that equilibrium conditions no longer exist, one or more of these quantities will not be locally conserved.

What has actually been done here is to open the classical EM model to the free exchange of massless EM energy that is always ongoing between any charged particle's mass and the vacuum. We then account separately for the flow of the energy exchange (of the massless charge flow) and the flow of the physical receiver/transmitters (i.e., for charged mass flow). Our switching arrangement to separate the collection and discharge cycles constitutes a permissible "Maxwell's Demon" which breaks symmetry, hence breaks equilibrium and opens the system as required. Since such a system can continually receive a free influx of energy from its external source, such a system can permissibly exhibit overunity operational efficiency without violating the laws of physics.

8. Displacement current is already known to be lossless transport of energy without entropy, i.e., without work. For a typical confirmation see Jed Z. Buchwald, From Maxwell to Microphysics, University of Chicago Press, Chicago and London, p. 44 (1985). Quoting: "...no energy transformation into heat occurs for displacement currents."
9. We strongly stress again that the scalar potential may be mathematically decomposed into a harmonic series of hidden bidirectional EM wave pairs. Each wave pair consists of an ordinary EM wave together with its superposed phase conjugate replica wave. Thus internally the scalar potential gradient across a source represents a bidirectional exchange of EM wave energy with the surrounding vacuum. See notes 13, 14, 15, and 16 below for references confirming the decomposition of the "fixed" potential into a dynamic flow process and energy exchange process.
10. For confirmation see Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, pp. 283-287 (1963). See particularly p. 283, which emphasizes that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. See p. 17 on the limitations of

a "natural law"; p. 213 and 215 for limitation of thermodynamic analysis to equilibrium states; and see p. 216 for definition of entropy. See p. 217 for the fact that the entropy for non-equilibrium conditions cannot be computed, and the entropy of a system not in equilibrium must be less than the entropy of the system in equilibrium, i.e., for a system to depart from equilibrium conditions, its entropy must decrease. Therefore its energy must increase. Thus the energy of an open system not in equilibrium must always be greater than the energy of the same system when it is closed and in equilibrium, since the equilibrium state is the state of maximum entropy.

11. Lindsay and Margenau, *ibid.*, p. 217.
12. The basic notion in the perpetual motion conundrum is that somehow a closed system in thermodynamic equilibrium could perpetually provide external energy to a load outside the system. Such a notion is an oxymoron; if the system is closed, no energy can escape or enter, hence the system could not furnish energy externally to power a load or even just to radiate away. My associates and I have not in any manner proposed such a system or entertained the notion that such might exist. But it is well-known that open systems not in thermodynamic equilibrium can freely extract energy from their environment and furnish energy to power a load, and that is precisely what we have proposed.
13. G. J. Stoney, "XLVIII. On a Supposed Proof of a Theorem in Wave-motion, To the Editors of the Philosophical Magazine," *Philosophical Magazine*, 5(43), pp. 368-373 (1897).
14. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, vol. 57, pp. 333-355 (1903). Whittaker mathematically decomposes the scalar potential into a bidirectional series of EM wave pairs in a harmonic sequence. Each wave pair consists of the wave and its phase conjugate. (We have pointed out elsewhere that such a wave pair is a standing electrogravitational wave and a standing wave in the curvature of local space-time). To see that all classical EM can be replaced by interference of two such scalar potentials (i.e., by the interference of their hidden multi-wave sets), see E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proceedings of the London Mathematical Society*, Series 2, vol. 1, pp. 367-372 (1904).
15. Richard W. Ziolkowski, "Localized Transmission of Electromagnetic Energy," *Physical Review A*, 39, p. 2005 (1989). For related material, see Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," *Journal of Mathematical Physics*, 26, pp. 861-863 (1985). See also Michael K. Tippet and Richard Ziolkowski, "A Bidirectional Wave Transformation of the Cold Plasma Equations," *Journal of Mathematical Physics*, 32(2), pp. 488-492 (1991).
16. C. W. Hsue, "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," *IEEE Microwave and Guided Wave Letters*, 3, pp. 82-84 (1993).
17. H. E. Puthoff, "Source of Vacuum Electromagnetic Zero-point Energy," *Physical Review A*, 40(9), pp. 4857-4862 (1989). Presents Puthoff's self-regenerating cosmological feedback cycle for the source of the vacuum EM zero-point energy.

Our comment: Over any macroscopic range, the vacuum fluctuations ( $\nabla\phi$ 's) of the ZPE sum to a vector zero translational resultant. The individual ZPE components ( $\nabla\phi$ 's), however, are still present and active, and their energies are present as well. That vector zero can thus be considered to be a gradient-free potential, or the vacuum potential, since it contains enormously dense, trapped EM energy. So the vacuum potential -- pure space-time (ST) itself -- contains enormously dense EM energy.

One can then apply the Stoney/Whittaker/Ziolkowski (SWZ) methodology to decompose this powerful vacuum potential, i.e., the vacuum, and in fact space-time (ST) itself, into an incredibly dense flux of EM energy. Space-time is revealed to be an incredibly powerful electrostatic scalar potential. The electrical charge (potential) of a charged particle is a small potential gradient in the ST potential, i.e., it is a slight alteration of the local ST potential. Via Puthoff's self-regenerative feedback cycle, the energy flowing in this potential is being exchanged between the local source and all the charges everywhere in the universe. This "potential gradient" or electrical charge itself can be decomposed via the SWZ approach, and becomes a bidirectional EM wave pair exchange of excess EM energy between the vacuum/ST and the charged particle's mass. The potential gradient between the ends of a dipole have similar decompositions, with the additional characteristic that the negatively charged end of the dipole receives the forward-time waves from the SWZ wave pairs, and the positively charged end receives the time-reversed waves.

Our final comment is that Cole and Puthoff have rigorously shown that, in theory, the vacuum EM energy can indeed be extracted. See Daniel C. Cole, and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," *Physical Review E*, 48(2), pp. 1562-1565 (1993).

18. T. W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), pp. 23-41 (1991). Barrett shows that a higher topology EM model (e.g., EM expressed in quaternions) allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. As an example, one may meet optical functioning without the presence of optical materials.



## LEGEND:

● = filled black dot (like scalar product) in original text  
 $\emptyset$  = Greek letter  $\emptyset$  for the Scalar Electrostatic Potential field  
 $\nabla$  = Greek letter Nabla (upside down triangle)  
 $|x|$  = Absolute value of x (only positive)  
uf = microFarad

**PRACTICAL OVERUNITY ELECTRICAL DEVICES**

(C) T.E. Bearden  
May 13, 1994

**Introduction**

Recently, my associates and I have filed a patent application on what we believe will at long last reveal the mechanisms for practical overunity electrical devices. It is my purpose in this paper to provide additional information augmenting my former two papers, (1) "The Final Secret of Free Energy," Feb. 1993, and (2) "Additional Information on the Final Secret of Free Energy," Feb. 1994. In this present paper, with the permission of my colleagues, I release the gist of our work on separation of electrical charge into two coupled components  $\emptyset \bullet (m)$ , where  $\emptyset \bullet$  represents the massless charge of the charged particle or mass,  $\bullet$  represents the fact that it is coupled or trying to couple to the special mass that makes up charged particles [i.e., the special kind of mass that will couple to the virtual photon flux density that is represented by the symbol  $\emptyset$ ], and m represents the inert mass component of the charged mass. Since not all masses will couple with  $\emptyset \bullet$ , we indicate the type of mass that will couple with it, as  $\bullet m$ . Thus a charged mass is composed of  $(\emptyset \bullet) \bullet (\bullet m)$ , which we consolidate to  $(\emptyset) \bullet (m)$ .

**Charge Is Not Quantized**

An interesting immediate result is that the massless charge of a fundamental charged particle is not quantized; it changes as a function of the background potential in which it is embedded. So it is discretized as a function of the background potential (i.e., of the virtual photon flux exchange between it and the surrounding vacuum). Otherwise, e.g., there could be no  $\nabla \emptyset$  created on any charged particle q, and hence no E-field, and hence electrons would not move in our present circuits. Since they do move in our circuits, charge is not quantized.

**Electrical Current Has Two Components**

The first key to understanding free energy electrical and magnetic machines is to realize that electrical current actually consists of two currents coupled together. Our treatment of an electric charge as a coupled system  $(\emptyset) \bullet (m)$  also means that electron current  $i = dq/dt$  is comprised of two coupled components  $[(d\emptyset/dt) \bullet (dm/dt)]$ . This follows from simply invoking the operator  $d/dt$ ; i. e.,  $d/dt[(\emptyset) \bullet (m)] = (d\emptyset/dt) \bullet (dm/dt)$ , which is the same as  $[(d\emptyset/dt) \bullet] \bullet (\bullet dm/dt)$ . The component  $(d\emptyset/dt) \bullet$  is the known but not well understood massless displacement current, while the component  $\bullet (dm/dt)$  is the mass displacement current, and the coupling operator  $\bullet$  means "coupled to" or "trying to couple to". The coupling operator represents a real physical operation: the exchange of virtual photons between the vacuum potential and the charged mass. Any potential  $\emptyset_1 \bullet$  is considered to be a potential that is superposed upon the ambient vacuum potential  $\emptyset_0 \bullet$ , to provide a potential  $(\emptyset_0 + \emptyset_1) \bullet$ . The ambient vacuum potential does not disappear merely because we add another potential to it!

**Confusion In Present Electrical Physics**

We point out that, in physics books of note, the overt coupling effect is essentially unknown or ignored because physics presently has not defined either the scalar potential or the electrical charge. The conventional theory simply uses an "inert" expression  $d\emptyset/dt$  to represent the displacement current (and another inert expression q for a charged mass), and most theoreticians are uncomfortable even with that. The displacement current is also confused with force by equating the displacement current  $d\emptyset/dt$  to  $dE/dt$ . In turn, this means that  $d\emptyset/dt$  is confused with mass, hence with  $dm/dt$ , which latter is also a component of  $dq/dt$ . m is always an \internal component\ of force, as is known in foundations of physics but this fact continues to remain completely oblivious to the electricians. [Good electrical theorists do admit that there is no force in the vacuum; and that the force associated with the E-field is evidenced

only in the interacting mass. However, they continue to maintain the E-field (force per point-coulomb of charged mass) in the vacuum, when there are no point-coulombs of charged mass there!

### Mass Is an Internal Component of Force

It is easy to show that mass is always a component of force: We will simply define *force* precisely. We first insist that no equation can be used as a definition; an equation simply states that the magnitude of one of its sides and the magnitude of the other side are equal. (The length of a board and the length of a human may be equal, but writing that as an equation has absolutely nothing to do with the definition of either a board or a human). So we will insist that any true definition must be an *identity*.

We define force  $F$  as  $F \equiv d/dt(mv)$ , whereupon mass is a component of force *a priori*. It follows that, if we define the E-field  $E$  as the force per coulomb, we are defining it as the force existing at a point and having a point-coulomb of charged mass as one of its major components. We may accurately now define  $E$  as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ , where the absolute value symbol in the denominator is essential,  $q/|q|$  being one point-coulomb. [We leave as an exercise for the reader the further reduction of this definition by treating  $q$  as  $\bullet(\Phi \bullet m)$ ].

At any rate, with the new and correct definition of the E-field, one can see that the flow of displacement current ( $d\Phi/dt$ ) upon a collector such as a rigid capacitor, containing a fixed charge  $\bullet(\Phi \bullet m)$ , will result in the formation of an excess  $\nabla \Phi \bullet$  upon those restrained charges in the capacitor plate, so that there is created an  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ . Since the conventional theory considers the antigradient of the potential as an E-field, then one can now see the exact mechanism that creates this E-field that grows upon the capacitor (across its plates) as it charges. In fact, the  $q/|q|$  cannot change in a capacitor if its plates and dielectric are immovable. Instead, in that case, the  $\Phi \bullet$  portion of the trapped  $\bullet(q)$  changes, producing the  $(\nabla \Phi) \bullet$  change. Since the  $(\nabla \Phi) \bullet$  component is coupled to the mass component of the fixed  $\bullet q$  as  $(\Phi + \nabla \Phi) \bullet m$ , then an E-field is created and exists as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ .

### An Ideal Capacitor Is an Electron Current Blocker

We point out that, if the capacitor's components are ideal, *completely rigid*, and do not physically move, then the capacitor is a " $\bullet dm/dt$  blocker." If the charges really were frozen in place, then the potential would flow across the plates at the speed of light, via the flow of excess massless displacement current  $d\Phi/dt \bullet$ . In that case, an ammeter would not show the classical "exponential fall-off" of the current with time; the electron current  $dq/dt$  would occur as a single-point Dirac delta function at  $t=0$ , and would be zero thereafter. And no electrons would be able to move in zero time. The voltage would show an instantaneous adjustment to the charged value with a single step-function, and the capacitor would charge up fully, instantly, with no work (energy loss) whatsoever being done. And this charge-up of the capacitor would not dissipate in the slightest the source furnishing the voltage; there would be no electron current  $dq/dt$  through the back EMF of the source, hence no work inside it to deplete its separation of charges.

### Problems With Ordinary Capacitors

However, most ordinary capacitors are much more than just an ideal capacitor. The plates move, the dielectric moves, etc. due to the forces created upon them by the E-fields created upon the trapped charges in them. The spatial translation of the resulting force moving the plates constitutes work; i.e., it dissipates some of the flowing  $d\Phi/dt$  energy. Each movement of the plates and/or dielectric carries with it all its internally trapped charges. The movement of those charges constitutes a substantial longitudinal electron current  $dq/dt$ , when compared to the longitudinal "drift" electron current in normal circuits. [Electrons spend most of their time moving radially in a wire, not down it.] This "moving plate and its transported charges" make an electron current, which pumps the inert electrons in the ground return line back through the back EMF of the source, depleting the source. Consequently, the ordinary capacitor will simply release as much energy as work (to move the plates and dielectric) as it stored. Hence, it will also produce dissipation of the source via the amount of energy stored in the capacitor. You still get "free energy" stored in the capacitor, but also dissipate the source by an equal amount.

### Rigidized Capacitors Must Be Used

Only rigidized capacitive collectors are useful in free energy devices. Such capacitors are in fact actually available, e.g., as calibration standards, but they are extremely expensive (\$400 to \$2,000 or so each, for a capacitance reaching about 1 uf).

So, capacitive type collectors must be rigidized, if used in overunity circuitry. Even so, in a single integrated circuit, although one collects free energy, one will use half of what was collected to dissipate the source. Not all the remaining half will be discharged

through the load; some will be discharged in other circuit and component losses. Hence, there will always be less work done in the load than is done in the source to kill it, by a conventional two wire single closed circuit. In my second referenced paper (Feb.94), I included precise proof that this is true. One must use energy collection and shuttling between two isolated circuits, and the load discharge current must not pass back through the primary source of potential.

We have previously provided precisely how to utilize capacitive collectors in our two referenced papers. We point out here that the capacitors must be calibration standard capacitors, or specially made rigidized capacitors.

### **It Does Not Require Electron Current to Charge An Ideal Capacitor**

For the benefit of the skeptic, this is already proven. We simply list references (2) and point out the equation that represents the energy  $K$  in a charged capacitor. Here we have  $K = \frac{1}{2}(CV)^2$ . It is totally the displacement current  $d\Phi/dt$  flowing (from a higher potential) onto the charging plate that produces the higher potential  $\Phi$  on that charging plate, and hence a  $V$  between the two plates, one of them (the "ground" side) being held at a constant potential. The mass displacement current component  $dm/dt$  of the electron current  $dq/dt$  has nothing whatsoever to do with energy accumulation; it has only to do with the dissipation of energy that is happening simultaneously in all losses and loads in the circuit loop.

We reiterate that most ordinary capacitors have terrible internal movement, and accomplish as much energy dissipation as they do energy collection by permitting  $dq/dt$  and work performed upon the plates and dielectric to move them. The standard two-wire circuit also guarantees that all such  $dq/dt$  current "through" the capacitor is passed back through the source against its back EMF, doing an equal amount of work in the source to dissipate its separation of charges and "destroy" the source.

An ideal capacitor does not pass  $dq/dt$ , but only massless displacement current as theorized by Maxwell to save current continuity in a circuit containing a capacitor, and hence to save Ampere's current law. That is, an ideal capacitor is a  $dm/dt$  blocking device. However, the capacitors utilized in normal circuits are not ideal capacitors at all. By allowing the plates to move, electron current  $dq/dt$  is created on both sides of the capacitor. Otherwise there would not be a ground return  $dq/dt$ , but only a ground return  $d\Phi/dt$ . This  $d\Phi/dt$  would not and does not push electrons back up through the source against its back EMF; else the ground side of the source, which is engaged in continuous  $d\Phi/dt$  exchanges with the vacuum, would produce destructive amperage  $d\Phi/dt$  in the battery or potentialized source, against its back EMF, while it was simply sitting on the shelf. In fact, a flow of  $d\Phi/dt$  continually runs from the vacuum to the positive terminal, then through the inside of the battery to the negative terminal, and thence back to the surrounding vacuum. Also, the incoming flow from the vacuum "splits" at the positive terminal, where one branch flows inside the source to the negative terminal, and the other branch flows through the external circuit to the ground return line, and thence to negative terminal and back to the vacuum. In the external circuit, the  $d\Phi/dt$  hooks to free electrons and moves them as ordinary  $dq/dt$ . In the internal circuit inside the source, the electrons are restrained, hence they only move when their restraint is overcome.

### **Displacement Current $d\Phi/dt$ Is Real**

In recent years, SQUID detectors have been utilized to detect the magnetic field created between the plates (at right angles) by the displacement current  $d\Phi/dt$  between the plates, providing strong evidence that displacement current is physically real. The best proof that it is real is a charge blocking device, two isolated circuits using energy collection and shuttling, and overunity powering of loads in the secondary circuit.

### **A Problem With Ammeters and Measurement of $d\Phi/dt$**

Note that an ammeter cannot differentiate between displacement current  $d\Phi/dt$  and normal current  $dq/dt$ . In the ammeter, the sample  $d\Phi/dt$  will couple to free electrons, producing a normal  $dq/dt$  inside the ammeter. The driving of this  $dq/dt$  through a precision resistance, e.g., is measured and the instrument is calibrated to show the  $dq/dt$  amperes flowing. One of the major needs of free energy researchers is the development of a good current meter that will differentiate between  $d\Phi/dt$  and  $dq/dt$ , and measure each one. Short of using a mass spectrometer to differentiate the mass current  $dm/dt$ , and comparison of those mass current measurements with an ammeter's measurements of the "current"  $dq/dt$ , and calculating the  $d\Phi/dt$  from that, I presently know of no way to precisely and simply measure and separate the two current components. I have been thinking of utilizing a multi-channel sampling meter set arrangement, where one channel uses a  $dm/dt$  blocking device such as the Fogal semiconductor in this respect, but have not yet developed the complete concept.

### **Better Solution: A Charge Blocking Device**

A better solution than the capacitor or capacitive collector is the use of a special rigid solid state "charge blocking device", such as a Fogal semiconductor, to enable the current separation into two components, blocking of the mass flow component, and passage of the massless displacement current component. *In overunity electrical devices, it is massless displacement current  $d\phi/dt$  that must be separately passed down the primary circuit and collected in the collector as an E-field or an H-field. This provides "free" energy that has been extracted from the vacuum, via the potential difference between the terminals of the source antenna, and collected and stored in the appropriate field, without work.* The collected free energy may then be transferred to the isolated load circuit by a variety of means, for separate discharge through the load without return of  $dq/dt$  through the source.

### The Fogal Semiconductor Meets the Charge-Blocking Requirements

Fogal's marvelous semiconductor blocks passage of electrons into its output terminal, but passes displacement current  $d\phi/dt$  into it. The semiconductor is powered by (receives) normal electron current and excess  $d\phi/dt$ , but outputs pure massless displacement current  $d\phi/dt$ . A charge blocker that passes  $d\phi/dt$  is ideal for our overunity mechanisms, enabling them to be readily obtained as we shall shortly see.

### Energy, Flow, Finite Amount of Energy, and Collectors

We accent that the flow of energy in an electrical circuit is purely by means of the massless displacement current component ( $d\phi/dt$ ). The flow of the mass component  $\bullet(dm/dt)$  represents the "flow of work" (*energy dissipation*) in the circuit. Power is rigorously the time rate of doing work, and electron current  $dq/dt$  is a part of power. It has nothing whatsoever to do with the time rate at which *energy is transported without loss*; instead, power represents the rate at which energy "leaks" or is "lost" during its transport.

All measurement is work, not energy. Energy cannot be measured, even in theory, a priori. Energy is also a flow process, and never a finite amount in one location. A specific differential of energy flow may exist on a specific finite collector. However, it only represents a certain constant differential amount of energy flow compared to the universal vacuum energy flow or some other flow reference point. It is like a whirlpool in the river. Energy is like the flowing water, and an "amount" of energy is like the amount of water in the collecting whirlpool form (between its input flow and its output flow) at any time. Obviously, energy (ordering) forms can come and go; the water flow itself remains. Any "magnitude of energy" is always a "trapped" amount of energy in a "collector" (form).

### Decoupling Current Components and Utilizing $d\phi/dt$

The two components of electron current  $dq/dt$  can be decoupled, by blocking the  $\bullet dm/dt$  component while allowing the  $d\phi/dt$  displacement current to continue to flow. In our first paper, we pointed out one way: utilizing a special degenerate semiconductor material whose electron gas relaxation time is extended, providing a finite time during which the material serves as a *charge (i.e., a charged particle) blocking device*, while passing the flow of potential (the  $d\phi/dt$  massless displacement current component) and restraining the mass displacement current component  $\bullet dm/dt$ . With the advent of Fogal's semiconductor, the process becomes much easier to obtain and utilize in practical machines and circuits.

In our second paper, we pointed out a second way: utilize an ordinary capacitor and ramp-up step-charging. We found, however, that in most ordinary capacitors, the capacitive aspect is defeated by the sloppy movement of the plates and dielectric, converting  $d\phi/dt$  into  $dq/dt$ . Only a few very carefully selected capacitors are sufficiently rigid and can provide overunity. One must use *rigidized* calibration standard capacitors for the ramp-charging by series steps method to be successful. With ordinary capacitors, however, one can readily demonstrate that the efficiency can approach 1.0 rather than 0.50 as expected.

### Overunity Secrets: Charge Blocking, Collection, Shuttling, and Two Isolated Circuits

The charge (actually *charged mass*) blocking approach provides a massless, free flow of vacuum EM energy that can be directed to a collector (capacitive or inductive) where it can be stored in either an E-field or a B-field. This stored energy can then be transferred to an isolated load circuit whose electrons (and hence their  $\bullet dm/dt$  mass displacement current) are free to flow as  $dq/dt$ . In the isolated load circuit, then, the two components  $[(d\phi/dt)\bullet(dm/dt)]$  again couple to form  $i = dq/dt = [(d\phi/dt)\bullet(dm/dt)]$ , powering the load. All work in an electrical circuit is due to the mass displacement current  $\bullet dm/dt$  component; the massless displacement current ( $d\phi/dt$ ) is a flow of pure energy transport without loss, as is well-known. (For example, see Reference 4.)

Therefore, the first major free energy secret is simply to block the "working" component  $\bullet dm/dt$  of the current  $dq/dt$  while allowing the excess "lossless energy flow" component  $d\phi/dt$  to flow to collectors to produce either free E-field or free B-field thereupon.

The second major secret is to transfer the collected excess free energy (via energy shuttling) to a second, isolated, load circuit, where the energy is discharged through the load in the conventional fashion (i.e., such that the two current components are coupled, and electron current  $i = dq/dt$  occurs through the load). The second circuit must be isolated from the original collection circuit, so that none of the load electron current  $dq/dt$  passes back through the original source, against its back EMF.

Should the grounds be the same between the load circuit and the collection circuit so that load electron current is returned through the back EMF of the primary source, then exactly as much excess work will be done inside the source to dissipate its separation of charges as was done in the external load to furnish useful work and in the external losses. In that case, overunity is destroyed, because one is using one-half the excess free energy to destroy the source faster, while the remaining half is distributed among all external loads and losses. Since there are always some external losses besides the load, then the ratio of load power to source dissipation power is always less than unity in a conventional closed-loop circuit containing both load and source. Hence the necessity for utilizing two isolated circuits: one where energy is collected freely from the source, and one where energy is dissipated as work in the load without dissipative work in the source, and energy shuttling between them.

### A Simple Open-Loop Overunity Device

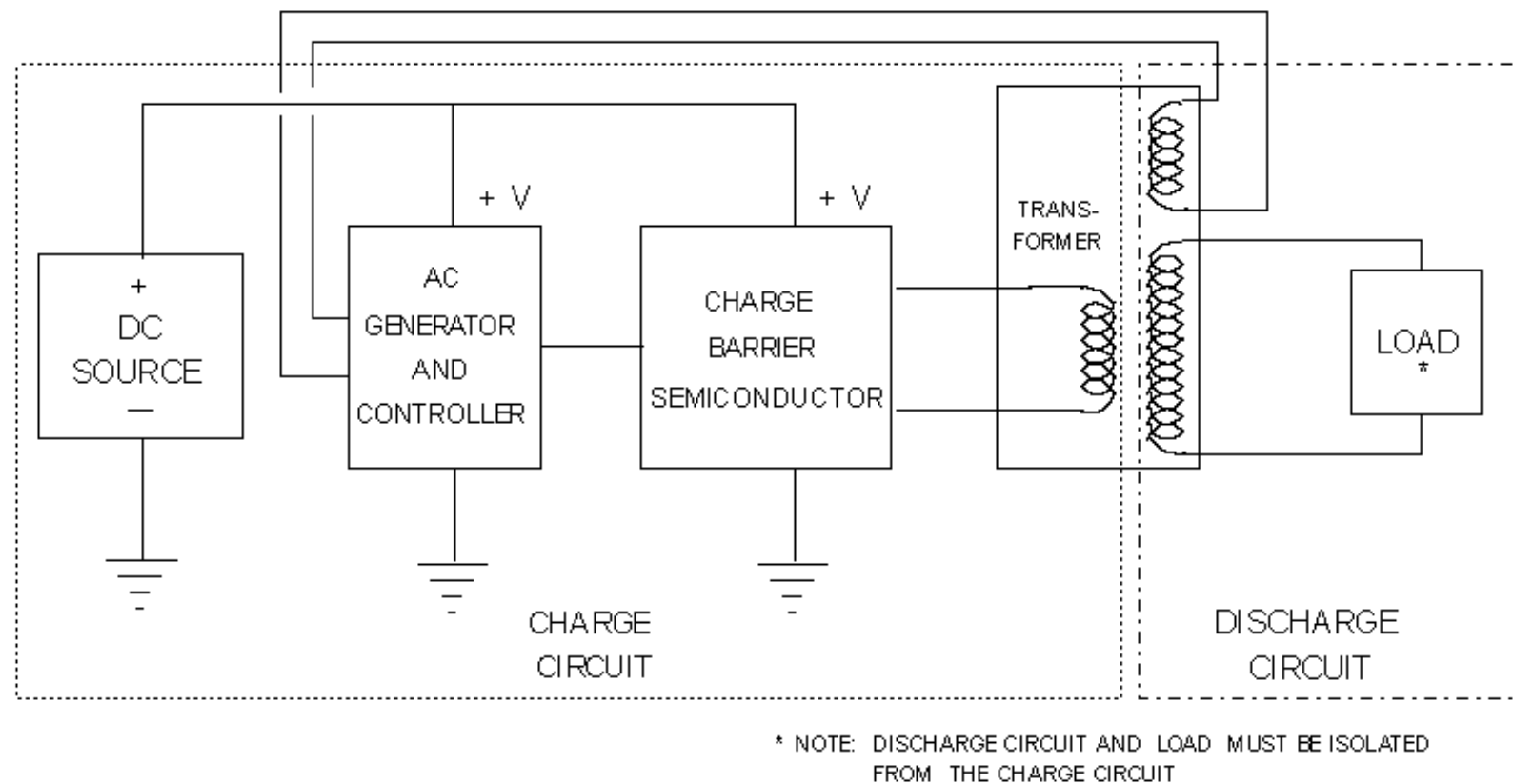


Figure 1. Use of Charge Barrier Device to Achieve Overunity in a Shuttle Circuit.

Figure 1 shows a very simple but very powerfully amplified overunity device, using an AC charge blocking semiconductor (CBS) (such as a Fogal semiconductor). The gist of the circuit is that an AC source furnishes AC current  $dq/dt$  to the CBS, which uses some of the power to power itself, but then blocks the  $dm/dt$  portion of the  $dq/dt$  input current, passing only the massless displacement current component ( $d\phi/dt$ ) into its output circuit. The ( $d\phi/dt$ ) output of the CBS is fed through the primary winding of a transformer, in this case a step-up transformer. The "current gain" of the CBS will depend upon (1) the load connected to it, and (2) the ability of the CBS to continue to block the increasing E-field on its trapped charges, as more free energy flow ( $d\phi/dt$ ) is drawn through it by the load. Thus the load and the CBS must be matched within the operational ability of the CBS, so that the CBS does not fail catastrophically.

In the primary winding of the transformer, the ( $d\phi/dt$ ) displacement current produces a magnetic field  $H$ , storing the excess flowing

energy in that field. This is a normal magnetic field; all magnetic fields are produced by the  $(d\Phi/dt)$  component of the current anyway. This magnetic field, as it changes, couples to the secondary winding, producing a normal magnetic field  $H$  therein by normal means. In the secondary circuit, electrons are not restrained by a CBS. Hence the  $(d\Phi/dt)$  induced in the circuit on the secondary side couples to the unrestrained electrons, producing normal electron current  $dq/dt$ , and driving it through the load to power it. Note that energy is conserved across the primary and the secondary; however, dissipative power and work (energy loss rate and energy loss) are not conserved, because a free flow of lossless excess energy in the form of displacement current is flowing from the vacuum through the source antenna, thence to the CBS, through it to the primary of the transformer and into the primary magnetic field, through it to the secondary magnetic field, through it into the  $(d\Phi/dt)$  induced in the secondary circuit and coupled to the electrons, through the resulting  $dq/dt$  into the load, where the scattering of photons as heat dissipates the free flowing energy in the displacement current  $d\Phi/dt$  component flowing through the load as a component of  $dq/dt = (d\Phi/dt) \bullet (dm/dt) = (d\Phi/dt) \bullet (dm/dt)$ .

### Free "Power" Amplification

If one places an ammeter in the output from the CBS, between it and the primary winding of the step-up transformer, one will read the  $(d\Phi/dt)$  as *normal  $dq/dt$  in the ammeter itself*. If one calculates the "free power" (i.e., the rate of energy dissipation) that is going into the transformer primary using this as the "current," one will show that energy and "power" are conserved between primary and secondary of the transformer. However, the actual dissipative power going into the primary side is zero or, in real circuits, vanishingly small. Consequently, the device has a very high variable power gain that depends upon the rate of energy draw and dissipation of the load on the secondary side. If one adds more load, one draws more  $dq/dt$  current on the secondary side, hence more excess  $d\Phi/dt$  displacement current on the primary side. The overall "power amplification" is limited by the ability of the transformer to handle the power in the secondary and the ability of the CBS to withstand the pressure of the internal charge barrier. This device can be easily "close-looped."

### The Negative Resistor: A Close-Looped "CBS and Shuttle" System

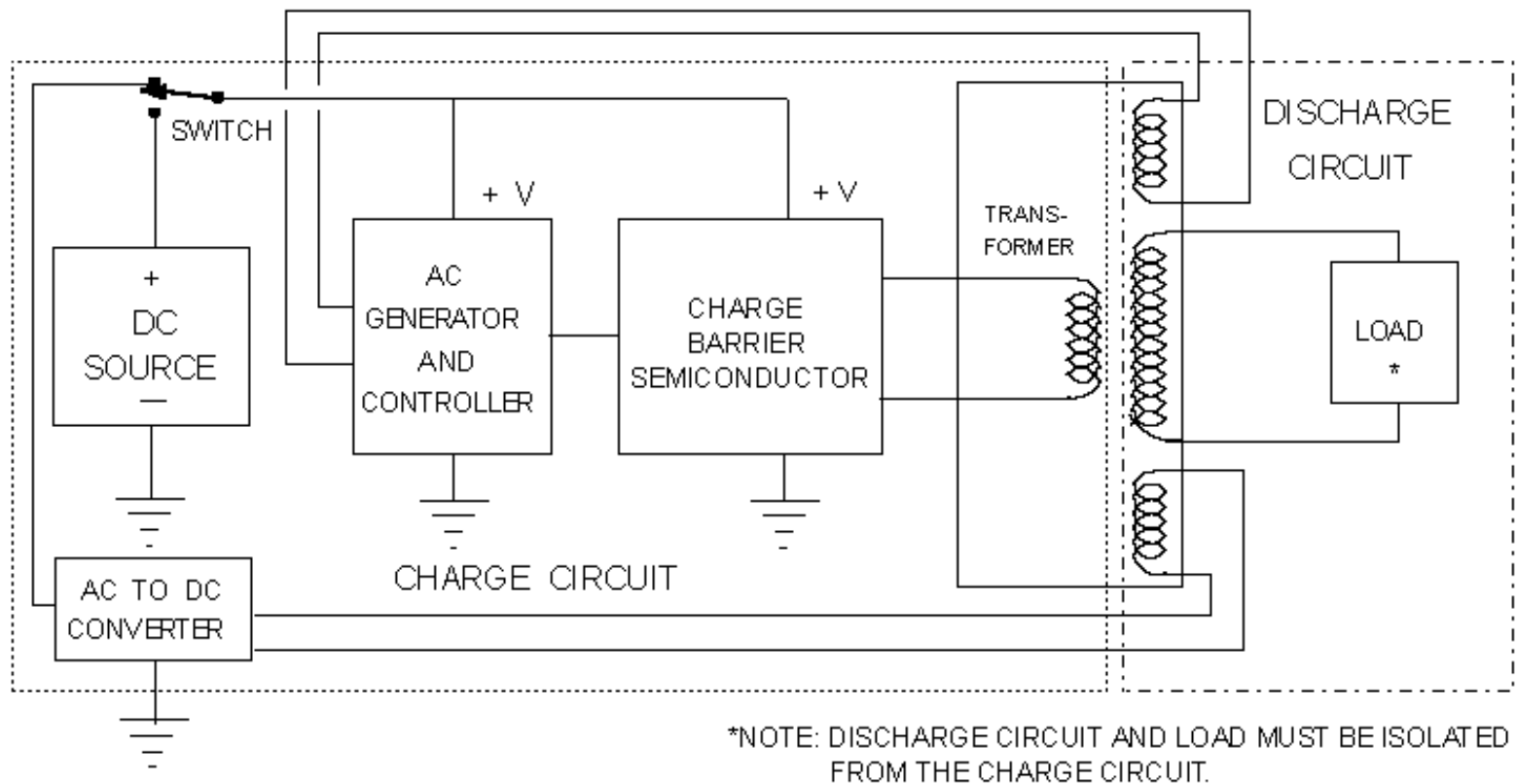


Figure 2. Use of Charge Barrier Device in a Shuttle Circuit With Controlled Feedback, to Achieve a True Negative Resistor.

Figure 2 shows the close-looping of the device shown in Figure 1, in such manner that, once stable operation is underway and the load and input stabilized, the ordinary power supply for the CBS can be switched out of the circuit. In this case, the circuit operates as a self-powered overunity device; i.e., as a *negative resistor*.

A normal resistor receives an ordered energy flow from its external circuit and scatters this energy as work out to the vacuum. I.e., it receives  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$  (scatters the excess  $(\nabla\Phi)/dt \bullet$  component (i.e., of the  $dq/dt$  passing into it from the high potential side) by radiating it away to the surrounding vacuum as scattered photons (heat)), and outputs inert (no excess  $(\nabla\Phi) \bullet$  component) electron current  $dq/dt$  into the ground side.

A negative resistor does exactly the opposite: it accepts inert incoming electrons from its "ground" side, also accepts incoming (converging)  $d\Phi/dt \bullet$  energy from the vacuum as virtual photons being absorbed upon these inert electrons so that a  $\nabla\Phi \bullet$  is added to the electron current, creating an excited, excess energy-carrying  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$ , and passes this excited current out of its high side and out into the external circuit to power the circuit. In other words, the negative resistor becomes a *self-contained free power source*, once brought up to stable operation.

In Figure 1, all that needs to be done is simply to extract some of the secondary power and feed it back to create the power input consumed by the CBS and the other normal components of the primary circuit side of the transformer.

Multitaps can be added to the secondary side, to provide varying voltage power supplies for loads requiring different voltages.

Energy is conserved in the device, because it always functions as an open circuit, receiving excess energy from an external source (the surrounding vacuum, in its virtual photon exchange with the charges in the system). It is far from thermodynamic equilibrium, and classical thermodynamics (including the second law) does not apply.

It is simply a continuous free power supply: it is a *negative resistor*.

Far more complicated units can be designed and produced. The basic point is that this type of overunity power supply is continuous and self-powered, driven by the violent exchange of energy from the vacuum, and simply collecting and gating some of that energy to the load to power the load.

## Conclusion

With this third paper, we complete the triad of papers we set out to write a little over a year ago. With the availability of charge barrier devices such as the Fogal semiconductor, together with the collection, shuttling, and use of free  $d\Phi/dt \bullet$  flowing energy, the *Age of Free, Clean, Electrical Energy* has finally dawned.

Let us use it wisely, and for the betterment of humankind, not for its destruction.

[Support of portions of this research by A.D.A.S. is gratefully acknowledged.]

## References and Notes

1. Bearden, T.E., Feb. 9, 1993, "The Final Secret of Free Energy," ADAS, distributed over Internet. The paper was also published in *Magnets*, 7(5), May 1993, p.4-26, in *Explore!*, 4(3/4), 1993, p.112-126, and in several other media. See also Bearden, T.E., "Additional Information on the Final Secret of Free Energy," Feb. 15, 1994, distributed on Internet.
2. For proof that an ordinary capacitor can be charged almost without entropy, see Fundaun, I., C. Reese, and H.H. Soonpaa, "Charging a Capacitor," *American Journal of Physics*, 60(11), Nov. 1992, p.1047-1048. See also Calkin, M.G. and D. Kiang, "Entropy change and reversibility," *American Journal of Physics*, 51(1), Jan. 1983, p.78-79. See also Heinrich, F., "Entropy change when charging a capacitor: A demonstration experiment," *American Journal of Physics*, 54(8), Aug. 1986, p.742-744. See also Gupta, V.K., Gauri Shanker, and N.K. Sharma, "Reversibility and step processes: An experiment for the undergraduate laboratory," *American Journal of Physics*, 52(10), Oct. 1984, p.945-947.
3. In most texts, the treatment of displacement current is far from adequate. A better treatment than most is given by Krauss, John D., *Electromagnetics*, Fourth Edition, McGraw-Hill, New York, p.437-439, 547-549. This treatment must still be augmented by treatment from other texts, and the ensemble "synthesized." Even then, it will never be completely clear until the separation of mass from the massless charge, and separate accounting of the two, is accomplished in the manner pointed out by the present paper.



4. For a typical confirmation that massless displacement current is already known to be lossless transport of energy without entropy, i.e., without work, see Buchwald, Jed Z., From Maxwell to Microphysics, University of Chicago Press, Chicago and London, 1985, p.44. Quoting: "...no energy transformation into heat occurs for displacement currents." It should be obvious from this fact alone that the proper way to accomplish overunity in electrical devices is to utilize the massless displacement current to flow and store excess energy, then use a "heat pump" type cycle to transfer the collected energy to a separate load circuit and discharge it separately in the load.
5. For a very recent proof that the potential is a flow process, and in fact consists of bidirectional EM waves, see Hsue, C.W., "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," IEEE Microwave and Guided Wave Letters, 1993, Vol. 3, p.82-84.
6. For proof that the vacuum EM zero-point energy is continually produced by a cosmological feedback from every charged particle in the universe, see Puthoff, H.E. , "Source of Vacuum Electromagnetic Zero-point Energy," Physical Review A, 40 (9), Nov. 1, 1989, p.4857-4862.
7. For proof that in theory the vacuum energy can be tapped, see Cole, daniel C. and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," Physical Review E, Vol. 48, No. 2, Aug. 1993, p.1562-1565.
8. For proof that a higher topology examination of EM phenomena allows energy collection as potentials and energy shuttling in circuits, see Barrett, T.W., Annales de la Fondation Louis de Broglie, Vol.16, No. 1, 1991, p.23-41. Barrett shows that EM expressed in quaternions allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. He in fact shows that Tesla's patented circuits did exactly this.
9. Stoney, G.J. (1897) "XLVII. On a Supposed Proof of a Theorem in Wave Motion, To the Editors of the Philosophical Magazine," Philosophical Magazine, 5(43), 1897, p.368-373. Stoney first pointed out the bidirectional EM wave decomposition of the scalar potential.
10. Whittaker, E.T., "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, 1903, p.333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol.1, 1904, p.367-372.

# BEARDEN

## THE FINAL SECRET OF FREE ENERGY



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# THE FINAL SECRET OF FREE ENERGY

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February 9, 1993  
(slightly revised March 23, 1993)

## Foreword

This paper contains the real secret of tapping the vacuum energy very simply, using almost any source of potential (battery, electrostatic generator a la Swiss electrostatic device (the Testatika), elevated wire wire/250 V/m in the earth/ionosphere potential, etc). The objective is for the moderately technical reader to understand how to build and understand not only a single device, but also hundreds of different kinds of them. While it is quite simple, the "magic principle" contained in this paper only took me some 30 years to discover.

The precise definitions necessary to understand the free energy rationale are included. Also included are some very simple pseudo equations for the process. Do not underestimate these simple pseudo equations -- they tell the tale that's needed.

Also, there has been little or no time to "dress up" the paper. It's simply written down very informally, to get the necessary points across.

Nearly everything *fundamental* that we've been taught about EM energy is wrong or incomplete. Even the *definition of energy* in physics is wrong! Let me summarize a few of the things that are wrong with the classical electromagnetics (CEM) model as follows:

CEM is still utilizing a model based on a material ether. Although the Michelson-Morley experiment destroyed the material ether assumption in 1887, the classical EM model has never been corrected. It also contains no definition of charge, and no definition of potential. In many cases, algorithms to calculate a magnitude are boldly and erroneously advanced as "definitions." CEM still prescribes the force fields as the causes of all EM phenomena; it has been known since 1959 that forces are effects and not causes, that EM force fields exist only in and on the charged particles of mass in the physical system, and that the potentials are the primary causes of EM phenomena. The lack of definitive definitions of mass and force in mechanics is carried over into EM theory; there is no adequate definition of EM force or of EM mass. The magnitude of the electrical charge on an electron is not quantized. Instead, it is discretized, being a function of the magnitude of the virtual photon flux (VPF) exchange between the vacuum and the charged particle. When the charged particle is placed in a potential that differs from ambient, then the magnitude of the VPF -- and hence the magnitude of the electric charge on the electron -- is altered. The CEM assumption of an "empty vacuum" is totally falsified by modern quantum mechanics. The CEM notion that EM force fields and force field waves exist in vacuum is totally false. Only potentials and potential gradients exist in the vacuum. EM waves in vacuum are not force field waves as CEM prescribes; instead, they are oscillations of potentials and potential gradients. Potentials have a bidirectional EM wave-pair structure, where the bidirectional wave pairs are phaselocked in a harmonic series. In each wave pair, photons and antiphotons are continually coupling (into spin-2 gravitons) and decoupling. This is where gravitation and electromagnetics are unified. The CEM notion that singular EM forces exist in either matter or the vacuum is false; Newton's third law requires that

all forces exist in opposite pairs. Not a single one of the equations universally taught as "Maxwell's equations" ever appeared in any book or paper by James Clerk Maxwell; instead, they are Oliver Heaviside's equations. Maxwell's actual theory was written in quaternions, which is a complete system of mathematics. The Heaviside/Gibbs vector version

(1) has a lower topology,

(2) is not a complete system of mathematics, and

(3) actually captured only a subset of Maxwell's actual theory.

Tensor theory does not recapture that which was lost.

There are even more errors in CEM, but these should suffice to make the point: *Classical electromagnetics theory is seriously flawed, with archaic foundations, riddled with errors, and it should be completely redone.* Until this revamping of CEM is accomplished, the present model solidly blocks free energy, antigravity, a unified physical field theory, and a unified theory of mind and matter interaction.

A second paper this year will detail the exact long-term causative mechanism for cancer and leukemia, and the exact mechanism for essentially 100% cure of terminal tumors in laboratory animals, demonstrated by the Priore team in France in the late 1960s and early 1970s. The same mechanism can be used to cure AIDS.

Throughout the world, humankind is suffering. In the poor populations of the world, early death is the norm, as is frequent famine. One third of the human race goes to bed hungry each night. Protein starvation of children is common. One third of the human race is infected with worms. Many other diseases ravage the far-flung poor peoples of the world. They have little or no industries. They have no abundant electrical power. They have little education, and little modern knowledge. They have little or no medical treatment. In short, they are born without hope; live in misery, filth, disease, and poverty, and die without dignity.

Meanwhile, the factories, cities, and enclaves of the "developed and developing" worlds belch forth fumes, toxic and hazardous wastes, and pollutants. They also spew forth weaponry which for one reason or another is used to arm the poorer nations, for use in destroying themselves and their impoverished neighbors. Warfare, terror, banditry, despotism, and all the four horsemen of the Apocalypse are truly loosed in the earth.

We simply must do better than that. And we *can* do better than that! But to do better, we've got to make the basics available to impoverished nations, cheaply and easily. Primary among their needs are energy and medical treatment. Given those, populations can be stabilized, people educated, development begun, and the living standard drastically elevated.

So that is the immediate goal. In this paper, I am freely giving away what required me an arduous 30 years of my life to discover. Shortly we will also detail the new methodology for a new therapeutic science, hopefully to cure the diseases that ravage humanity.

God willing, this paper will trigger a thousand, or even ten thousand, scientists and engineers to develop overunity energy devices. If so, shortly we can rid our biosphere of noxious automobile and factory exhausts, radioactive nuclear wastes, and massive oil spills. We can remove many of the hydrocarbon combustion pollutants from the air, stop acid rain and the destruction of our forests, and stop the steady rise of carbon monoxide in our air. If that truly tends toward a "Greenhouse" effect, then we can halt that effect as well.

The Creator has always given us bountiful free electrical energy, everywhere, easily and readily for the simple taking. It has only been our own blindness and folly that have prevented us from seeing and using this free energy bounty.

So here is the final secret of abundant, free electrical energy. Please use the knowledge well and see that its benefits also accrue to those impoverished ones who need it so desperately. Remember the adage, "Inasmuch as you have done it to these little ones..."

*This is for those little ones. You are our brothers and sisters. We want you to live. And we want you to have a better quality of life, not just bare existence. We care.*

Tom Bearden

February 9, 1993

## THE FINAL SECRET OF FREE ENERGY

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### Some Definitions

**The Quantum Mechanical Vacuum:** First we need some definitions. We start by assuming the *quantum mechanical vacuum*.<sup>1</sup> Empty "spacetime" is filled with an incredibly intense flux of virtual particles. It is a plenum, not an emptiness. We shall be interested only in the fantastic flux of *virtual photons*, for we are discussing electromagnetics.

**Energy and Potential:** *Energy* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. *EM energy* is any ordering, either static or dynamic, in the virtual photon flux (VPF) of vacuum. That is, for a particular kind of "field" energy, we simply choose the so-called quantum particle of that field, and consider only that kind of virtual particle flux.

*Potential* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. Hey! That's exactly the same definition as energy. Quite correct. Energy and potential are identically the same. Neither is presently defined correctly in physics.

Energy is normally defined as "Energy is the capacity to do work." That's totally false. Energy has the capacity to do work, because work is correctly defined as the dissipation (disordering; scattering) of energy (order). The scattering of energy is work. It is not energy! I.e., *energy is not definable as its own scattering!*

Look at it this way: A man *has* the capacity to catch fish. That is true, but it is not a definition, since a definition must in some sense be an *identity*. You cannot say that a man *is* the capacity to catch fish! That may be a submitted definition, all right, but it is false. Similarly, energy *has* the capacity to do work; that is one of its attributes. But energy *IS* the ordering in the VPF (we are referring from now on primarily only to EM).

**Scalar and Vector Potentials:** The *scalar potential* is any static (with respect to the external observer) ordering in the VPF of vacuum. The *vector potential* is any dynamic (with respect to the external observer) ordering in the VPF of vacuum. We shall be interested in the electrostatic scalar potential. So it is a static ordering -- a stationary *template* -- in the VPF of vacuum, much as a whirlpool is a stationary ordering (template, form) in the rushing flow of a river.

### The Scalar Potential Has An Internal Structure

**The Structure of the Scalar Potential:** According to rigorous proofs by Whittaker<sup>2</sup> and Ziolkowski,<sup>3</sup> any scalar potential can be mathematically decomposed into a *harmonic series of bidirectional wave pairs*. Figure 1 shows this Whittaker/Ziolkowski (WZ) structure. In each pair, the forward-time wave is going in one direction, and its phase conjugate (time-reversed) replica wave is going in the other. According to the so-called *distortion correction theorem*<sup>4</sup> of nonlinear phase conjugate optics, this PCR wave must precisely superpose spatially with its partner wave in the pair. The two waves are *in-phase spatially*, but 180 degrees *out of phase in time*. The wave is made of *photons*, and the antiwave (PCR wave) is made of *antiphotons*. It follows that, as wave and antiwave pass through each other, the photons and antiphotons are coupling and uncoupling with each other, because the antiphoton is a PCR photon, and PCR's precisely superpose spatially with their partner. A photon or antiphoton has wave characteristics, because it has a frequency; if the wave aspects are perfectly ordered and perfectly correlated, then so are the photon's particle aspects.

**A Potential Is An Ordering Across the Universe:** So we have -- astoundingly -- perfect VPF inner ordering infolded in the electrostatic scalar potential! We also have perfect wave/antiwave ordering infolded in there. When you collect a simple set of charges on a small ball or in a region, the scalar EM potential from that set of charges reaches across the universe. In it you have an infinite harmonic series of phase-locked time-forward EM waves going out from the charges to all distant points of the entire universe. And you have an infinite harmonic series of phase-locked time-reversed EM waves coming from all points of the universe, back to the "collected charges" source.

**A Potential Is A River of Energy:** The point is, you have established a *mighty, hidden, 2-way river of energy* between that collection of charges and every other point in the universe. There is infinite energy in each of those infolded waves and antiwaves. But in a localized region, the *energy density* in each wave is finite. Since in finite circuits the potential interacts with a localized set of mass, we shall be concerned with the *local energy density* (joules/coulomb) *of the potential*.

But forget the conventional myth of visualizing the potential as pushing a unit charge in from infinity "against the force field" -- there *isn't* any force field in the vacuum, as is well-known in quantum mechanics. Also, Newton's third law requires all forces to occur in pairs -- each pair consisting of a force and its 3rd law reaction force. From that viewpoint alone, there is no such thing as an EM forcefield or force field wave in the vacuum. There are just *gradients of the vacuum potential* present in the vacuum. In the vacuum, an EM wave is actually a wave of the phase locked gradients of the electrostatic scalar potential and of the magnetostatic scalar potential. And each such gradient wave is simultaneously accompanied by its phase conjugate gradient wave, because of Newton's third law.

*Newton's third law requires forces to occur in pairs of equal but antiparallel forces.*

Both wave and antiwave co-exist simultaneously in the vacuum EM wave.<sup>5</sup> Therefore it's a stress potential wave, not a force field wave. It's more like an electromagnetic sound wave,<sup>6</sup> and so it is a longitudinal wave, not a transverse wave. In the EM vacuum wave's interaction with matter (the so-called "photon" interaction), the wave normally half interacts with the electron shells of the atom, giving translation forces, while the anti-wave half interacts with the atomic nucleus, giving the Newtonian 3rd law reaction (recoil) forces (waves). The EM wave in vacuum is an *electrogravitational wave*.

**Energy Is Internally Infinite and Unlimited:** A static potential -- which is identically excess *energy* -- is internally dynamic and infinite. Energy is internally infinite and unlimited! But it has a finite *energy density* in a local region of spacetime. Since energy interacts with matter locally, we shall be concerned with the *local energy density* (joules per coulomb).

**A Principle of Great Importance:** The only way you can have a "chunk" or finite amount of energy to dissipate in a circuit as work is to first have a potential's local energy density interact with a local finite mass collector. The normal interacting mass collector is the free electrons (the free electron gas) in the circuit. You can have, e.g., (joules/coulomb x coulomb); (joules/gram x grams); (joules/m<sup>3</sup> x m<sup>3</sup>); etc.

**Voltage, Force, Potential Gradients, Loads, and Work:** Now let's look at circuitry aspects. Conventionally they are a mess. *Voltage* is "essentially" defined as the "drop in potential." In other words, it's the dissipation (disordering) of a "finite amount" of potential gradient. But the only way you can get a "finite amount" of infinite energy/potential gradient is by first interacting the potential gradient's internal, finite, excess energy density with a finite "collector" mass. E.g., (joules/coulomb available for collection) x (coulombs collecting) = excess joules collected on the interacting coulombs, available for dissipation.

So *voltage* is really the dissipation of a finite collection of excess EM energy/potential gradient. The *dissipation* of potential or of its gradient is not potential! You cannot logically define either potential or energy as its own dissipation!

We presently use the notion of "voltage" in two completely contradictory ways in electrical physics. Here's how we got the confusion: We take a potential gradient (which has a local energy density), and we "collect" it across some charged masses in a locality -- usually the free electrons in the free electron gas in our circuitry. That is, we express the finite energy density of the potential gradient (before collection onto charges) in the local region in terms of *energy per coulomb*. The potential gradient actually is a change to the ambient potential, and so it contains an *excess* energy density (the magnitude may be either positive or negative). We then collect this potential (actually this potential density) on a certain number of coulombs, which places tiny little gradients of potential across (coupled to) each free electron. The local excess energy density of the potential gradient multiplied by the amount of collecting mass gives the amount of excess energy collected (on the interacting charges/coulombs). On each collecting particle, that little gradient, together with the coupling particle, constitutes a tiny force.  $F$  is not just *equal to*  $ma$  (non relativistic case); instead,  $F \equiv (ma)$ , where (mass x acceleration) is considered as a unitary, inseparable thing. So that little *potentialized electron* (that little *EM force*) moves itself around the circuit. In the load (scatterer), the little potentialized electron (the little force) is subjected to jerks and accelerations, thus radiating energy (shucking its gradient). Since this is done in all directions in the scatterer (load), that gets rid of the gradient, reducing the "little force" (potentialized electron) to zero because the little potential gradient is lost due to radiation.

### **Collecting And Dissipating Energy**

**Energy Dissipation and Collection:** Without further ado, we consider the scalar potential's local energy density in terms of *joules per coulomb*. That is, in a specific glob of charges (i.e., in finite circuits), the amount of energy collected from a potential gradient onto the finite number of charges receiving/collecting it, is equal to the number of joules of energy per coulomb that is in the potential gradient, times the number of coulombs collecting (receiving) the potential gradient. The current is the activated (potentialized) coulombs per second that dissipate their potential gradients during that second. The current multiplied by the *time the current flows* gives the activated coulombs that dissipated their activation (potentialization) during that flow time. *Dissipating, activated coulombs* multiplied by the *excess energy collected per activated coulomb* gives the energy dissipated (the work or scattering done) in the load.

We define *collection* as the connection of a potential gradient (a source) to the charged masses in a circuit element (the element is called the *collector*), which for a finite delay time does not allow its potentialized free electrons to move as current. In the collector, during this delay time these trapped electrons are "activated" by potential gradients being coupled to them.



Technically, that delay time in the collector is known as relaxation time,<sup>7</sup> in the case of the free electron gas<sup>8</sup> (in a wire or in a circuit element). A collector then is a circuit element that has a usable, finite relaxation time. During that relaxation time, the trapped electrons are potentialized without movement as current; each collecting/receiving free electron gets a little gradient across it, but no current yet flows. In other words, during this finite relaxation time (collection time), we extract potential from the source, but no current. Thus we extract energy (potential), but no power (which is voltage x amperage). During the relaxation time, we extract from the source only a flow of VPF, which is continually replaced in the source by the vacuum's violent VPF exchange with the source's bipolarity charges. We do not extract power from the battery/source during relaxation time, but we extract free energy density. That free energy density, coupling with a finite quantity of electrons, gives us a collected finite amount of energy. With that background, let's start again, and go through this in a useful "free energy" manner.

**The Electron Gas.** We refer to the conventional model of the free electron gas in a wire.<sup>9</sup> Although the electrons in this gas actually move by quantum mechanical laws and not by classical laws, we shall simply be dealing with the "on the average" case. So we will speak of the electrons and their movement in a classical sense, rather than a quantum mechanical sense, as this will suffice very well for our purposes.

When one connects a circuit to a source of potential gradient (say, to a battery), the first thing that happens nearly instantly is that the potential gradient races onto the coupling wire and heads down it at almost the speed of light. As it goes onto the wire, this gradient "couples" to the free electrons in the free electron gas. However, inside the wire, these electrons can hardly move down the wire at all; they can only "slip" once in a while, yielding a "drift" velocity of a fraction of a cm/sec.<sup>10</sup> On the surface, things are just a little bit different. Most of the "current" in a wire, as is well-known, moves along the surface, giving us the "skin" effect. [For that reason, many cables are stranded of finer wires, to provide more skin surface per cm<sup>3</sup> of copper, and hence more current-carrying capability per cm<sup>3</sup> of copper.]

So, initially, little gradients of potential appear on and across each free electron, with a single little  $\nabla\phi$  on each electron, and coupled to it. The couplet of  $[\nabla\phi \bullet m_e]$ , where  $m_e$  is the mass of the electron, constitutes a small  $\Delta E_e$ . [This is rigorous; the conventional EM notion that an E field exists in the vacuum is absurd, and it is well-known in QM that no observable force field exists in the vacuum. As Feynman pointed out, only the potential for the force field exists in the vacuum,<sup>11</sup> not the force field as such. Or as Lindsay and Margenau pointed out in their Foundations of Physics, one does not have an observable

force except when observable mass is present.<sup>12</sup>]. We have stated it even stronger: Not only is  $F = ma$ , but  $F \equiv ma$  (nonrelativistic case).<sup>13</sup> Since no observable mass exists in vacuum, then no observable F exists there either.

### **Force, Coupled Gradients, and Electron Translation**

**Electrons Coupled to a Potential Gradient Move Themselves.** The point is, when activated by a "coupled potential gradient," the activated electron *moves itself* until it loses its activation (its coupled potential gradient).

Let me say that again, in a little more detail. Forget the standard notion that a force field such as the E-field causes electrons to move. Also forget the notion that the E-field is given by  $E = -\nabla\phi$ . In foundations of physics, those equations are known to be incorrect for the vacuum. EM force fields are known (in QM foundations theory) to be *effects*, existing only in and on the charged particles, and not existing separately at all,<sup>14</sup> or in the vacuum at all.<sup>15</sup> Instead of  $E = -\nabla\phi$ , in the vacuum the correct equation would be something like this:  $P_E = -\nabla\phi$ . In this case, we have correctly stated that the potential gradient  $P_E$  provides the potential for producing an antiparallel E-field in and on a coupling/collecting charged mass, and the magnitude and direction of that

potential gradient will be given by  $-\nabla\phi$ , if and only if a charged mass particle is first introduced so that it couples to  $P_E$ .

At any rate, the activated/potentialized electron moves itself. The reason is that it constitutes a force. Force  $\equiv$  (mass x acceleration) (non relativistic case). So the potentialized/activated electron is continuously accelerating. However, it is prevented from easily moving down the wire directly. To begin to do that, it essentially has to first move to the outer skin of the copper conductor.

**The Collector:** We now consider a circuit element that we called a *collector*. (It could be a special coil made of special material, a capacitor with doped plates rather than simple conducting plates, or any one of a number of things). The objective is for the *collector* to be made of special material so that it has a free electron gas whose electrons are momentarily not free to move as current (they continue to move violently around microscopically, but essentially with zero net macroscopic translation) for a finite delay (relaxation) time, while they are settling themselves upon the surface and preparing to move as current. Let's call the electrons NNTE (no net translation electrons) during that finite delay (relaxation time). During that "no-current" delay time, the NNTE electrons become potentialized/activated by the potential gradient impressed across the collector. So at the end of the NNT time, the NNTE electrons are potentialized, and each is of the form  $[\nabla\phi \bullet m_e]$ .

### **The Secret of Free Energy**

**Two Circuits/Two Cycles:** We are going to use two circuits and two cycles, as shown in Figure 2:

(1) We shall connect a *collector* to a primary source of potential (to a battery) during the short time that current does not yet flow, but potential does. (In other words, during the relaxation time of the collector, we allow the VPF to flow onto the NNTE electrons of the collector and potentialize (activate) them, but do not yet allow the electrons themselves to flow as current, but only to move transversely in the wiring and collector.) This is **cycle one** of a 2-cycle process: This is collection of a specific amount of current-free potential gradient -- power-free energy -- off the potential-source (the battery) onto a collector. During the collection cycle/time, *current does not and must not flow* (we are discussing the ideal case). We are freely "charging up" the collector as a *secondary battery/source*.

(2) At the end of the collection (potentialization/activation) time/cycle in circuit one, the potentialized collector (the charged secondary source) is sharply switched away from its connection to the primary potential source (the battery), and at the same time it is instantly switched into a separate closed circuit with the load. This is important: In **cycle two**, the potentialized collector (with its finite amount of excess trapped EM energy) and the load are connected in a *completely separate circuit*, and one that is closed, with no connection at all to the original source of potential (in this case, to the battery). Specifically, this "load and potentialized collector" circuit is completely separate from the primary source; during cycle two the primary source (the battery) is not connected to anything.

In other words, all we've taken from the primary source (the battery) is *current-free, force-field-free potential gradient*. So to speak, we've taken a "chunk of potential gradient" from the source, nothing else. You simply multiply the potential gradient's local energy density (the so-called "voltage", which is really excess joules per coulomb) by the number of coulombs of charge that is "activated" (that "collects" this voltage or excess joules/coulomb) in the collector. Specifically, we have not taken any *power* from the battery itself, and so *we have not done any internal work inside the battery upon its internal resistance*, by a "closed circuit electron flow" back into the battery. We have not permitted such a flow.

Instead, *we are using the activated collector as a temporary, secondary battery*. We will utilize this secondary battery in a conventional manner to power the load, *which will also kill the secondary battery* (dissipate its trapped EM energy). But that will *not* affect the primary source. The primary source is never used to directly power the load. It is only used as an infinite source of potential gradient (i.e., as an infinite source of *energy density*).

### **The Standard Power Extraction Circuit**

**The Conventional Circuit:** We digress momentarily: In the standard electrical method, the potential source (which is a bipolarity) is connected across the load. This connects both the external load and the internal resistance of the battery itself in series, as the "total circuit load." Electrons then pour through the external load circuit and through the internal battery resistance, from the "electron rich" polarity of the source to its "electron poor" opposite polarity. The scattering of energy in the internal battery resistance is actually doing work to upset the chemistry that is maintaining the battery's charge separation (the bipolarity). In this manner, the source's separation of charges (which is the "gate" furnishing the potential/energy gradient) is being destroyed as the current flows, and this in turn destroys the source of the potential gradient.

In other words, normally we, engineers, are trained to *kill the bipolarity*, which kills the potential source itself! Incredible as it may be, we, engineers and scientists, have been trained to utilize the free "trapped EM energy" furnished by nature through the source, to destroy the source of the energy/potential, *with the same vigor as they power the external load!* In fact, our teachers simply have never learned any other way to do it except this deliberately "self-destructive" manner!

### **A Waterwheel Analogy**

Imagine, if you will, a waterwheel that powers a mill, with a sluice gate upstream in a river, that diverts some river water into the sluice carrying water to the wheel when the sluice gate is opened into the river. The diverted water flows down to the waterwheel, turning it, and the spent water is fed back into the river below the mill site. Now what fool would connect a pulley onto the waterwheel, with a rope running from the pulley to the sluice gate, so that when the wheel rotated, part of the rotational power also was utilized to close the sluice gate and shut off the water, stopping the waterwheel? If one did so, when the sluice gate was opened, the waterwheel would rotate only until the sluice gate was closed, shutting off the water. Then one would laboriously have to pay to reopen the sluice gate again, then again, then again. No self-respecting "waterwheel engineer" would do such an unthinkable, insane thing. But that's exactly what we engineers, electrical physicists, and scientists have been trained to do! We have no *energy* engineers or *energy* scientists at all; instead, we have all been *power* engineers and *power* scientists. We have all been *energy source killers!* In this paper, we shall try to do better, and rectify "one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history," as Tesla called the conventional electromagnetics.<sup>16</sup> By being *energy* engineers, we shall only have to pay for our energy source *once*, and then we shall draw as much energy from it as we wish.

### **External Load Power Is Free; Only The Power In The Source Costs**

Here's the magic secret of free electrical power: ***The power in the external load is absolutely free, and it always has been free.***<sup>17</sup> ***In any load circuit, the only power you have to pay for, and have ever had to pay for, is the power you incorrectly use to kill your own primary source.*** The only power that "costs" more effort/dollars is the power erroneously utilized inside the source to "close the gate" and kill the primary source. Your electric power company doesn't pay for any of the collected energy on your load circuits that is dissipated to power your house. Instead, the power company charges you for its own ignorance. It charges you for its insane use

of its own freely extracted electrical energy to continually kill the bipolarity in each of its generators, thus continually killing the free electrical source of that generator's energy.<sup>18</sup>

***In any electric circuit, we can continue to indefinitely power the external load indirectly from a source, so long as we are not so naive as to use any of the free energy we extract from the primary source to dissipate back inside the primary source itself and shut it off!***

And we can easily and freely multiply electrical potential. As an example, given a single good source of potential, a hundred radial wires can be connected to the source. The same potential will now appear at each of the ends of the hundred wires. A switcher/collector unit can then operate from each radial line's end, and power external loads, without "loading" the original primary source. This "cascading" can be continued indefinitely. A single power plant, e.g., can power the entire electrical grid of the United States. And a single automobile battery can power a large, agile, electric automobile at highway speeds, with sports car acceleration, with unlimited range, without "refueling," and with no noxious chemical exhaust.

### **Obvious Impacts**

Environmentalists should immediately see that the chemical pollution of the biosphere by mechanistic and processes to obtain energy can be dramatically reduced, to almost negligible levels. *There need be no huge oil tanker spills, for there need be no huge oil tankers.* There need be no worrisome radioactive wastes from nuclear power plants, or abandoned hazardous nuclear plants when their life is finished, because *there need be no nuclear power plants.* There need be no noxious exhausts from jet airplanes (which are really what is diminishing the ozone layer and punching holes in it), automobiles, trucks, buses, innumerable coal-fired and oil-fired power plants, etc.

### **The Electronic Smog Problem**

In fairness we point out that, as the usage of free electrical energy mushrooms, we will be dramatically increasing the low-level EM signal density of the environment, and that too is biologically detrimental. Although beyond the scope of this paper, that cumulative biological damage mechanism has also been uncovered by this author. A formal paper is presently in preparation for presentation in March 1993 at the annual meeting and conference of the Alabama Academy of Science.<sup>19</sup> The paper will also present an entirely new definition of cancer, give its exact long-term cumulative mechanism, and give an exact, scientifically proven mechanism for eliminating cancer, leukemia, and other debilitating diseases such as AIDS. For our purposes here, we simply state that we understand the EM "electronic smog" biological damage mechanism, and how to go about developing a total counter for it. Eventually, we would see a small "counter unit" added to each power unit, alleviating the "electronic smog" problem and preventing biological damage.

### **Only Dissipate Energy From a Collector, Not the Source**

**Completion of the Collection Cycle:** But to return to the completion of our collection cycle (cycle one). *During collection, we have not extracted power from the source. That is vital.* We have not moved the gate through which our source is furnishing free energy. We have not diminished our primary source. From our previous definitions of potential, we have indeed extracted *trapped energy* from the primary source, because we placed its "local energy density" across a certain finite collector/mass, instead of extracting *power* (dissipating energy inside the source or battery to spoil its chemistry and deplete its charge separation).

### **All Energy Is Free**

Here's the incredible truth. The entire universe is filled with mind boggling free energy everywhere, in the simplest of things. Simply scrape your feet on the carpet, and you will collect perhaps 2,000 "volts" on your body. At that time, hidden EM energy is flowing from every point in the universe to your body, and from your body back to every point in the universe. We know that all macroscopic matter is filled with stupendous amounts of electrical charge. So an incredible river of energy -- a great flux -- is driving every single thing, from the smallest to the largest. Opening a gate to extract trapped EM energy is simple. Just collect a bit of charge, or scrape your feet hard, or comb your hair briskly. *All we have to do is not be stupid and close the gate once we've got it opened!*

God has been most kind. We have nothing but free energy everywhere. All energy is furnished to us freely! *It's our own blindness that has made us into energy source killers.* All we have to do is open our eyes to the truth of nature's incredible energy bounty. We must just freely collect that bountiful fruit from Nature's tree, instead of chopping down the tree and killing it.

### **Dissipating The Collected Energy**

**The Work Cycle:** We focus again on cycle two. Shortly after the now-potentialized collector is connected to the load at the beginning of cycle 2 (the *power* cycle, or *energy dissipation* cycle, or *work* cycle), the potential gradient across the potentialized collector is connected (transferred) across the free electrons in the load circuit. We assume that the material of the collector and the switching time have been designed so that, shortly after switching to the loading/work cycle, the activated/potentialized free electrons in the electron gas in the collector reach the skin of the collector, and are free to move as current.

So just after the beginning of cycle two, each of the free electrons in the load circuit now is potentialized and free to move down the wiring. Each potentialized (activated) electron has its own little individual potential gradient across it and coupled to it, due to the overall potential gradient from the collector. Remember, prior to coupling to charges, this potential gradient moves through the circuit at light speed. An EM potential gradient coupled to a charged mass constitutes an *EM force field* (excess trapped EM energy per coulomb, times the number of collecting coulombs). Now each little free electron with its potential gradient forms a little E-field (force/charge), and that little E-field (force/charge) is free to move. That's all it takes to move (accelerate) the little activated electron's mass through the load (the scatterer). We strongly stress that *the potentialized/activated electron moves itself*. It doesn't care whether or not the external battery is attached or not. It is its own little motorboat, with its own little engine driving it.

As the little potentialized electrons reach the load (the scatterer), they bang and clang around in there erratically. That is, the "scatterer" (load) causes spurious accelerations ("scatterings") of these self-driven electrons. As is well-known, when a charge is accelerated, it radiates photons. What actually happens is that these little "jerked around" electrons shuck off their little potential gradients in the load (in the scatterer, or the "jerker-arounder") by emitting/radiating photons in all directions. Hence the heat that is produced in the load; the heat is just these scattered photons. The theory of calorimetry already states that all the excess energy (on the potentialized electrons) will be dissipated as this heat (scattered EM energy).

When all the potentialized electrons have radiated away their potential gradients in the load (scatterer), they are no longer potentialized. The free electron gas is again "quiescent" and no longer potentialized/activated (again, we are talking about "on the average" from a classical viewpoint).

### **Repetition and Review**

**Notice What We've Done:** We took some trapped EM energy density (a chunk of potential gradient, a "voltage" before current flows) from the source, by switching that potential gradient (energy density, which is joules per coulomb) onto a collector (containing a certain number of

coulombs of trapped charges) where the potential gradient activates/potentializes/couples-to these temporarily non translating electrons. So the finite collector collected a finite amount of excess energy [joules/coulomb x collecting (trapped) coulombs] on its now-excited (activated) free electrons. Then, before any current has yet flowed from the source, we switched that potentialized collector (with its temporarily restrained but potentialized electrons; with their finite amount of excess trapped EM energy) away from the source and directly across the load. Shortly thereafter, the relaxation time in the collector expires. The potentialized electrons in the collector are freed to move in the external load circuit, consisting of the collector and the load, and so they do so. The scattering "shock collisions" due to the erratic electron accelerations in the load shake off the little potential gradients on the conduction electrons, emitting photons in all directions, which we call "heat." In shaking off the photons, the electrons lose their little potential gradients, hence lose their activation (excess EM energy).

Rigorously, we have extracted some energy in trapped form, and allowed it to dissipate in the load, "powering the load" for a finite discharge/dissipation time and doing work.<sup>20</sup> *Contrary to the conventional electrical power engineering, we have also done this without doing any work inside the source to diminish its ability to furnish potential gradient.*

### **What Is Energy In An Electric Circuit?**

**Energy in an Electric Circuit:** Here's the principle loud and clear. Energy in an electric circuit involves only the potentialization and depotentialization of the electron carriers in that circuit.<sup>21</sup> It involves only the potential gradient (the joules per coulomb) collected by the circuit to potentialize its electrons, and the number of coulombs of electrons that are potentialized during the collection phase. Electric circuits simply utilize electrons as carriers of "potential gradients," from the source to the load, where these gradients and the activated electrons constitute excess trapped EM energy. In the "shocking/scattering" occurring in the load, the jerking (acceleration) of the electrons causes these activated (trapped-energy-carrying) electrons to shuck off their potential gradients by emitting them as scattered photons (heat).

If one is thoughtless enough to allow the primary potential source to remain in the circuit during the "work" phase, then one is using the potentialized electrons to also go back into the primary source and scatter energy from its internal resistance (internal load), *thereby disorganizing the organization that was producing the source potential and energy in the first place.* If one does that, then all the while one is getting some work (scattering of energy) in the load, one is also steadily getting some work done inside the primary source to steadily destroy it! Literally, one is killing the goose that lays the golden eggs.

**Continued Operations:** But back to our circuit. After we complete one full collection/discharge cycle, we wish to continue producing work in the external load. So we simply switch the collector back away from the load and onto the primary source, collect some more current-free potential, and again independently switch the collector with its repotentialized free electrons back across the load. We can repeat this two-cycle process to potentialize the external load and power it as long as we wish, from a battery or other source of potential, and never take any power at all from the primary battery. We do not need to drain the battery or source at all, in order to power a load, unless we attempt to power it directly. Powering the external load is always free!

Nature has been most kind, and we have been most ignorant. You can have all the *trapped electrical energy* you wish, from any source of potential, for *free*. You can power all the external loads you wish, for free, by using a collector as a secondary source, and simply shuttling potential between the primary source and the collector.<sup>22</sup> But you cannot have power for free from (in) the potential source. If you allow current flow in your collection cycle, you are depleting the separated charges inside the battery that are furnishing the source potential.

### **The Coal-Fired Locomotive**

**Rigorous Analogy of a Coal-Fired Locomotive.** Now here's an exact analogy, to assist in understanding. Imagine a coal-fired train, and a fireman shoveling coal. He has an external load/scatterer of energy (the fire in the firebox under the boiler). He has a primary source of potential/energy (the coal car). No fireman in his right mind would ignite the coal in the chute of the coal bin, to try and get some heat energy into the firebox! [That is, he would not attempt to extract *power* from the source. Yet that's exactly what all we engineers are trained to do at present.] Instead, the fireman takes out (collects) a finite amount (a shovelful) of coal (trapped energy). Coal *per se* (the potential gradient) has a certain energy density per unit volume (trapped joules per unit volume of coal) and the shovel (collector) has a certain volume. Accordingly, the shovelful of coal contains a certain amount of trapped joules of energy. In the fireman's shovel (the collector), *the energy remains in totally trapped form, as coal not afire and without its trapped energy being dissipated as work.* [He doesn't act like a fool and ignite the coal in the shovel either!] He then throws that shovel of coal (collected trapped energy) onto the fire (scatterer), completely separately from the coal bin/source. He continues to repeat his shoveling cycle, and each shovelful of coal added to the fire dissipates additional energy, powering the load.

### **The Free Energy Principle**

**All potential gradient (trapped excess energy density) is free for the taking.**<sup>23</sup> The potential is due to the violent VPF exchange between the vacuum and the separated bipolar charges furnishing the source potential gradient. The energy of the entire universe is flowing through that source potential. You can have as much of this internal VPF flux energy (potential) as you wish, as often as you wish, so long as you don't demand *current* (which is power, or the rate at which the energy is being freed and dissipated). It's really simple. You can have all the *trapped* energy you wish, from any source. You cannot connect to the source and start to dissipate the energy as power, however, without starting to close the "gate" from which your free trapped energy is coming.

In other words, here's the iron rule: ***If you draw current, you kill the bipolarity gate furnishing the potential gradient (source of energy density). In that case, you kill the source. If you do not draw current, you do not kill the bipolarity gate and you do not shut down the source. In that case, you can continue to "use" it and extract trapped EM energy from it forever.***

### **Definitions Again**

**Definitions:** I'll put down some simple equations, that may help to explain it more exactly. First we repeat some definitions.

Energy is any ordering imposed upon the virtual particle flux of vacuum. EM energy is any ordering imposed upon the virtual *photon* flux of vacuum. Static energy is an ordering (a template) which is stationary with respect to the external observer. Dynamic energy is an ordering (a template) which is not stationary with respect to the external observer.

Potential: Any ordering imposed upon the virtual particle flux of vacuum. Scalar potential is an ordering (template) that is not moving with respect to the external observer. Vector potential is an ordering (template) that is moving with respect to the external observer.

The scalar EM potential is any static (with respect to the external observer) ordering imposed upon the virtual *photon* flux of vacuum. Etc.

Note again that energy and potential have exactly the same definition. Potential is in fact trapped energy. Scalar EM potential is *static EM energy* (to the external observer) or *trapped* (collected) EM energy. In other words, if one takes off a differential of potential onto a fixed



number of coulombs, one takes off a certain magnitude of trapped EM energy. In other words, one takes out a shovelful of coal from the coal car.

### **Importance of Separation of Charges**

**We Must Not Dispel the Separation of Charges In Our Source:** The difference in our coal-fired train analogy and our electrical circuit is that, in the coal train, the coal in the coal car is not automatically and continually replenished. Also, the coal in the coal car has already been collected by the mass of the coal car, so it is not infinite. In the electrical circuit, the potential gradient in the primary source is continually replenished, automatically, and it is infinite (though it has a finite energy density). The reason is simple. EM potential (in the normal sense) is actually a virtual photon flux exchange between the vacuum (the entire vacuum, all over the universe) and a charged particle or collection of charged particles.<sup>24</sup> Thus the potential (gradient) is a powerful energy flux, pumped by the vacuum and the entire universe, that continues automatically, so long as we do not allow the collected charges in our bipolarity source to be dissipated. In terms of a battery, we achieved separation of charges inside the battery by chemical action, and *we paid for that initially*. Once separated, the charges essentially stay separated (because of the chemistry) unless we foolishly do something to dissipate them, such as upsetting the chemistry, so they are no longer separated positive from negative. So if we don't do anything to these separated charges, they continue to be driven by their fierce exchange of virtual photon flux with the vacuum/universe. If we then simply extract some of that flux exchange, without moving the charges, we are directly "gating" trapped EM energy from the vacuum/charged particle VPF exchange.<sup>25</sup>

### **The Potential Is Infinite And So Is Its Energy Content**

**You Can't Dip The Ocean Dry With a Spoon:** Let's say that another way. The charged particles in our potential source are in a constant, seething, equilibrium exchange of trapped EM energy with the entire universe. That energy exchange is so enormous that, if we gate some of it out to collect on some other "temporarily frozen" charges and potentialize/activate them, the vacuum flux doesn't even miss it. It's like dipping a spoonful of water out of the restless ocean. The hole is instantly filled, and the water replenished. We can dip with that spoon as much as we wish, and the ocean will never run dry, but will simply continue to furnish us water, spoonful by spoonful.

The same is true in our electric circuits. We can have all the potential (trapped EM energy density) we wish, for free, from a single source, so long as we do not allow work to be done inside the source to close off our "gate" and kill our primary source.

### **The Twisted Concept of Voltage**

**Before We Develop Some Pseudo-Equations:** In the equations we wish to develop, we have one problem, due to the lack of insight of conventional electrical physicists. That is, they have insisted upon "measuring" and expressing both the infinite potential (nondissipated) and a certain quantity of potential (dissipated) in volts. So they say "a potential of so many volts." That's nonsense, and totally erroneous. Rigorously, a voltage is a drop or a dissipation of so much (a finite amount of) *collected* excess potential/energy. You "measure" the voltage in a voltmeter by impressing a potential gradient upon the electron gas in the circuitry, wherein you collect or get in your voltmeter so much [(joules/coulomb) x coulombs]. A tiny current (coulombs/second) from this internal collection then flows for a finite time through the resistance of the voltmeter. So you dissipate (joules/coulomb) x (coulombs/second) x (seconds), which gives a certain amount of energy dissipated as work in moving the needle of the voltmeter. The voltmeter is calibrated so that it effectively indicates the *collected energy per coulomb* that was dissipated, and it calls that entity voltage. It involves a finite amount of energy that has already been dissipated as work, and it's a measure of the local energy density of the potential in terms of joules/coulomb. It is *not* a measure of the potential proper. It's after the fact; the extracted

So we'll leave it at that, and we'll adapt the notion of potential the way it is corrupted in electrical circuit theory. There it's used not really as energy, but rather as *excess energy per coulomb of potentialized charge*. I apologize for that difficulty, which is not of my own making, but I must use the conventional notion if we are to greatly clarify the pseudo equations.

**The Pseudo-Equations:** Let us use the following subscripts and letter convention, and develop the nomenclature needed:

But  $V_T \times \text{coul}_T = K_T$  [6]

Or

$[V_T] = [K_T] / [\text{coul}_T] = \text{trapped energy/trapped coulomb [7]}$

$[K_T] = [V_T] \times [\text{coul}_T] = \text{amount of trapped energy, each cycle [8]}$

So that's what we were getting at. The amount of trapped energy you can transfer (in other words, how much coal you get in one shovelful) depends upon the number of trapped electrons you have in the trapped free electron gas in the collector, and the potential gradient you apply to those trapped coulombs to potentialize them.

### **Relaxation Time and Semiconductors**

**Relaxation Time:** The time it takes for the free electrons in a conductor (or material) to reach the skin of the wire after potential is applied, is, of course, called the *relaxation time*. During that time, the free electrons in the gas are "trapped" insofar as producing current (dissipation of the potential) is concerned. However, immediately after the relaxation time ends, current begins and dissipation of the trapped energy begins.

In copper, the relaxation time is incredibly rapid. It's about  $1.5 \times 10^{-19}$  sec. However, in quartz it is about 10 days! So as you can see, we need to get somewhere in between these two values, and so we will have to "mix" or "dope" materials. We must get a sufficiently long relaxation time so that we can switch and collect comfortably in cycle one, then switch into cycle two for dispersion of the freely collected energy in the collector. However, the relaxation time we get must also be short enough to allow quick discharge in the load, as soon as we switch the primary source away from the collector. Actually, we need a *degenerate semiconductor material* instead of plain copper.

**Degenerate Semiconductor Material:** A *semiconductor material* is intermediate between a good conductor and an insulator. It's a nonlinear material, and doped. A *degenerate semiconductor material* is one which has all its conduction bands filled with electrons, and so it thinks it is a conductor. That is, a degenerate semiconductor is essentially a doped conductor, so to speak. As you can see, we can increase the relaxation time in our "conductors" connected to the source by making them of *degenerate semiconductor material*. What we're talking about is "doping" the copper in the wire, and in the collector, so that we can have plenty of time to collect, and switch, and discharge, and switch, and collect, etc.

Now in a doped conductor (degenerate semiconductor), we can tailor the relaxation time by tailoring the doping. We must dope the copper before we make the wire. Why would we wish to do that? We want to overcome the single problem that so far has defeated almost all the "overunity" researchers and inventors.

WHEN YOU CONNECT TO A SOURCE, YOU CAN ONLY EXTRACT CURRENT-FREE POTENTIAL -- FREE "TRAPPED EM ENERGY" -- DURING THE ELECTRON RELAXATION TIME IN THE CONNECTING CONDUCTORS AND SUCCEEDING CIRCUIT COMPONENTS. AFTER THAT, YOU'RE STEADILY EXTRACTING POWER, AND THE ENERGY EXTRACTED FROM THE SOURCE IS BEING PARTIALLY DISSIPATED IN THE RESISTANCE/LOADING OF THE CIRCUIT, AND PARTIALLY DISSIPATED IN THE INTERNAL RESISTANCE OF THE SOURCE. IN THE LATTER DISSIPATION, YOU'RE ALSO DISSIPATING YOUR SOURCE BY DOING WORK ON IT INTERNALLY TO KILL IT.

**Good Copper Wire: Bane of Overunity Inventors:** Many destitute inventors, tinkering and fiddling with overunity devices, finally get something (a circuit or device) that does yield more work out than they had to input. At that point, they usually conclude that it's simply the specific circuit configuration and its conventional functioning that produces the overunity work. However, usually as soon as this configuration is more carefully built with very good materials, boom! It

isn't overunity anymore. The inventors and their assistants then desperately bang and clang away, getting more frustrated as the years pass. The investors get mad, sue for fraud, or get in all sorts of squabbles. The scientists who tested it and found it wanting, pooh-pooh the whole thing as a scam and a fraud, or just a seriously mistaken inventor. Scratch one more "overunity" device.

Most of these inventors got their successful effect (and possibly erratically) when they were struggling with inferior, usually old, usually corroded materials. Actually, the *more* inferior, the better. The more contaminated/doped, the better!

The moment you wire up your circuit with *good copper wire* connected between the battery or primary source and any kind of load including the distributed circuitry loading itself, you can forget about overunity. You will lose it in the copper, after the first  $1.5 \times 10^{-19}$  second!

Think of a really good conductor such as copper as an essentially linear material. Linear means energy conservative. Overunity can only be done with a highly nonlinear effect. So your "conductors" have to be made of nonlinear materials. In fact, they have to be made of degenerate semiconductor material. For the type of circuitry we are talking about, the copper has to be doped and then made into "doped copper" wiring. You also have to utilize the primary battery only to potentialize a collector (secondary battery/source), and then use this secondary battery source to conventionally power the load *while also killing itself*.

**The Wiring And the Collector Must Be of Degenerate Semiconductor (DSC) Material.**<sup>26</sup> A good materials scientist/engineer, together with a decent electrodynamicist, can readily design and tailor some doped copper wiring so that the material in the wiring is a degenerate semiconductor material, with a target (desired) relaxation time. That's what you should use to make the wiring to connect up your source to the collector with, and that type of material is also what you use in your collector. You can use either a coil or a capacitor as the collector, but its "conductive" material has to be degenerate semiconductor material -- in short, it must be doped to have the proper relaxation time. From the collector to the load, however, obviously you want to use a good conductor material. Ordinary copper will do nicely there.

Once you do that, you're in business. When making the DSC material, simply tailor the relaxation time to something which is easily switched. For example, take one millisec. With a relaxation time of that long, switching is easy. In fact, one could even use good mechanical switching. Or easily use inexpensive ordinary solid state switching, without having to go all the way to nanosecond switching.

Then, in the collector, you calculate the number of "trapped coulombs" you have. Take the "trapped voltage" (current-free potential's energy density per coulomb) you extract from the source during the electron relaxation time after the collector is connected. Multiply the number of trapped coulombs in the collector by the trapped voltage during collection, and you have the amount of energy in joules that you extract FOR FREE, without paying for it, from the source *during every collection cycle*.

### **Sources, Collectors, and Power**

**Tapping Vacuum Energy.** You're getting the excess electrical energy directly from the vacuum, as we briefly pointed out above. The vacuum will freely replenish all the "trapped voltage" you extract from the primary source during the electron relaxation time. It won't replenish a single bit of "dissipated voltage" (power) you extract from the source.

Note that the same considerations apply in the collector. It's got to have a somewhat longer electron relaxation time. Its electrons stay "unrelaxed" during the collection cycle, and allow for some additional switching time to connect to the load. The "trapped voltage" across the collector multiplied by the number of trapped coulombs in it, gives the number of joules of FREE EM

ENERGY you extract and get into and onto the collector (the shovel). In other words, that's your "shovelful of coal." You then throw the "shovelful" onto the fire/load -- you simply disconnect the collector from the primary source and connect it across the external load. The collector (secondary battery) now powers the load and its own internal resistance, "killing" itself while furnishing the energy for powering the external load as well.

**The Source Can Be Almost Anything:** You can use as a source a simple elevated wire, to "tap" potential from the 200-300 volts/meter between earth and ionosphere. Here again, you need to utilize calibrated, doped wire.

Finally, you must adjust the repetition switching in accordance with the discharge time through the load. In other words, you have a serial process as follows:

- (1) extract trapped energy (potential) from the source onto the collector,  $\Delta t_1$ .
- (2) Switch the collector off the source, onto the load, during time  $\Delta t_2$ .
- (3) Wait while the collected energy in the collector discharges through the load, during time  $\Delta t_3$ .
- (4) Switch the collector back off the load and onto the potential source, during time  $\Delta t_4$ . That completes one cycle.

The serial timing simply is  $[\Delta t_1 + \Delta t_2 + \Delta t_3 + \Delta t_4]$ .

If you balance all the doping and the materials design, and correlate the switching, you can get all the free energy you wish. Properly utilized, a single car battery can be used to power an electric automobile indefinitely. Or even to power a battleship. In the real world, of course, you will inevitably have a tiny bit of loss as you go, because there's a finite (though high) resistance between the two poles of your battery. Handling that is a piece of cake. Simply run a separate little collection circuit to collect a little bit of trapped EM energy from the slowly leaking source, and ever so often feed the collected energy back into the battery as power, to "reseparate" the charges (charge the battery) and replace the small amount of the primary source's potential gradient that has been lost. The battery, load, and "trickle charger" then become a closed-circuit free-energy source that will last for years and years.

**Limited Only By One's Imagination:** Of course you can see many variants; this is just the "master key." You can have multiple collectors, collecting trapped energy simultaneously or in sequence off a single source, and pooling their collected energy to more powerfully power the load. You can utilize a very high "voltage", such as in the Swiss electrostatic overunity device, to increase the energy collected per coulomb in each switching (in each shovelful) in accord with equation [8]. For a battery, you can set a separate little collector/load device to trickle-charge the battery, overcoming the small normal "leakage current" that does occur in batteries and in real circuits and devices. The opportunities are endless. You can put in a unit to take mostly only power-free energy from the "power line" feeding your business or home, reducing your utility bill by -- say -- 90%. Or you can simply build a small home power unit to do the whole job, for only a few hundred dollars. *This simple secret can be used to power the world, cheaply and cleanly, and to clean up the biosphere.*

## **Conclusion**

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Well, there you have it. I've given you the benefit of what required most of my adult life to discover. The definitions advanced in this paper are rigorous. It took years of sweat and tears to

come up with them. They're simple, but they will change your entire understanding of electromagnetics, power, and energy once you grasp them. Please read them, and ponder them, several times. One or two readings will not be sufficient to fully grasp what is said here.

Also, hopefully, by this time, the reader is beginning to experience the same emotions as I experienced when I finally discovered how simple it all really was. First one wants to *laugh* for about two hours at how truly ignorant we've all been. Then one wants to *cry* for about two hours for the same reason. This could all have been done a century ago, *if we had ever really understood electromagnetics*.

We've had this electromagnetics around for over 100 years -- Maxwell's book was published in 1873. We got it wrong, starting right with Maxwell and his use of the material ether, which was almost universally assumed at the time. Still, by using quaternions, Maxwell succeeded in packing a great deal more in the model than even he himself recognized. When the vector aspects interacted to form a zero resultant *translationally*, those active interactants were still in there and still fighting and interacting. The scalar component of the quaternion remained, and infolded those struggling vectors and functions of them inside itself. In short, it captured the case where the electromagnetic energies are involved in translation actions which nullify each other translationally (electromagnetically). However, the energies are still in there in the continuing interactants inside the zero vector resultant. As such, they are trapped EM energy. And it is the trapped EM energy inside a mass -- not the mass per se -- which is responsible for gravitation. In other words, *Maxwell's theory already correctly captured the unification of the gravitational field and the electromagnetic field in 1873*.

Then Heaviside et al forced Maxwell's theory into a vector framework, throwing out the scalar component, and discarding the unification of gravitation and electromagnetics along with it. Serious errors were made and still exist in many of the fundamental definitions; in fact, many of them aren't definitions at all. Nearly every engineer and physicist can readily calculate potentials -- *all*, of course, on the "dissipation" side where the potentials are actually the amount of potential that was collected upon a collector and then dissipated. I could find hardly a single physicist who really knew what a scalar potential was prior to a finite amount being collected and dissipated as voltage. Yet 99% of them firmly believed they understood the potential.

So now you have the results of this researcher's long and arduous quest for the golden fleece. Please go forward with it, to make this a better and cleaner world for everyone.

Just remember that the control and use of energy is personal power. The control and use of absolute energy is the control and use of absolute personal power. In the old adage, power corrupts and absolute power corrupts absolutely.

Please use it wisely.

## **NOTES AND REFERENCES**

1. For a good discussion of the modern quantum mechanical view of the vacuum, see I. J. R. Aitchison, "Nothing's plenty: the vacuum in modern field theory," Contemporary Physics, 26(4), 1985, p. 333-391. See also T. D. Lee, Particle Physics and Introduction to Field Theory, Harwood Academic Publishers, New York, 1981 -- particularly Chapter 16, "Vacuum as the source of asymmetry." See Timothy Boyer, "The classical vacuum," Scientific American, Aug. 1985, p. 70; Walter Greiner and Joseph Hamilton, "Is the Vacuum really Empty?", American Scientist, Mar.-Apr. 1980, p. 154; Jack S. Greenberg and Walter Greiner, "Search for the sparking of the vacuum," Physics Today, Aug. 1982, p. 24-32; Richard E. Prange and Peter Strance, "The superconducting vacuum," American Journal of Physics, 52(1), Jan. 1984, p. 19-21; R. Jackiw and J.R. Schrieffer, "The decay of the vacuum," Nuclear Physics B, Vol. 190,

1981, p. 944. See Paul Davies, Superforce, Simon and Schuster, 1984 for a layman's overview of modern physics, including the modern view of the vacuum.

2. E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. Since the scalar potential actually consists totally of a set of hidden bidirectional EM waves, then *scalar interferometry* is possible, and not just an oxymoron as it would seem without considering the inner wave structure of the scalar potential. Two scalar potentials (each of which is a multi-biwave set) can interfere; it is just a special kind of multiple wave interferometry between their internal wave compositions. This is a major point of profound impact on physics. Whittaker in fact showed that *all classical EM* could be replaced by such scalar EM potential interferometry. See E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Further, scalar interferometry has been proven; today it is called the Aharonov-Bohm Effect. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 458-491. For confirmation and discussion, see Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm Effect," Physics Today, 39(1), Jan. 1986, p. 17-20. For an extensive discussion of the Aharonov-bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," Reviews of Modern Physics, 57(2), April 1985. Modern scientists have generally been unaware of the inner wave structure of the interfering potentials and have utilized only quantum mechanical theory for the interference. Consequently, they have been able to experimentally establish the AB effect for only a few thousand Angstroms distance. With the Whittaker formulation, the AB effect becomes distant-independent, because the necessary potentials can be fabricated as laser-like beams, simply by assembling the proper Whittaker multibeam set. Also, Ignatovich pointed out that the Schroedinger potential can also be decomposed into just such an internal bidirectional EM wave set. See V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

3. See Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," Journal of Mathematical Physics, Vol. 26, 1985, p. 861; "Localized Transmission of Wave Energy," Proc. SPIE, Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts, 1989, p. 396-397; "Localized Transmission of Electromagnetic Energy," Physical Review A, Vol. 39, p. 2005; "Localized Wave Transmission Physics and Engineering," Physical Review A, 1992, (in Press); "Localized wave transmission physics and engineering," Proc. SPIE Conference on Intense Microwave and Particle Beams II, Los Angeles, CA, vol. 1407, Jan. 1991, p. 375-386. See Richard W. Ziolkowski, Amr M. Shaarawi, and Ioannis M. Besieris, Nuclear Physics B (Proc. Suppl.), Vol. 6, 1989, p. 255-258; R.W. Ziolkowski, and D.K. Lewis, D.K., "Verification of the Localized Wave Transmission Effect," Journal of Applied Physics, Vol. 68, 1990, p.6083; Richard W. Ziolkowski, Ioannis M. Besieris, and Amr M. Shaarawi, "Localized Wave Representations of Acoustics and Electromagnetic Radiation," Proceedings of the IEEE, 79(10), Oct. 1991, p. 1371-1378; I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "A bidirectional travelling plane wave representation of exact solutions of the scalar wave equation," Journal of Mathematical Physics, 30(6), 1989, p. 806; A.M. Shaarawi, I.M. Besieris, and R.W. Ziolkowski, "A novel approach to the synthesis of nondispersive wave packet solutions to the Klein-Gordon and the Dirac equations," Journal of Mathematical Physics, 31(10), 1990, p. 2511; "A nondispersive wave packet representation of photons and the wave-particle duality of light," UCRL-101694, Lawrence Livermore National Laboratory, Livermore, CA, 1989; "Diffraction of a classical wave packet in a two slit interference experiment," UCRL-100756, Lawrence Livermore National Laboratory, Livermore, CA 1989; "Localized energy pulse trains launched from an open, semi-infinite, circular waveguide," Journal of Applied Physics, 65(2), 1989, p. 805; R.W. Ziolkowski, D.K. Lewis and B.D. Cook, "Experimental verification of the localized wave transmission effect," Physical Review Letters, 62(2), 1989, p. 147; R.W. Ziolkowski and D.K. Lewis, "Verification of the localized wave transmission effect," Journal of Applied Physics, 68(12), 1990, p. 6083; M.K. Tippet and R.W. Ziolkowski, "A



bidirectional wave transformation of the cold plasma equations," Journal of Mathematical Physics, 32(2) 1991, p. 488; A.M. Vengsarkar, I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "Localized energy pulses in optical fiber waveguides: Closed-form approximate solutions," Journal of the Optical Society of America A, 1991.

4. For a precise statement of the distortion correction theorem, see Amnon Yariv, Optical Electronics, 3rd Ed., Holt, Rinehart and Winston, New York, 1985, p. 500-501.

5. Both wave and antiwave co-exist in the vacuum simultaneously, forming a stress wave. The entity that is stressed is the rate of flow of time. In the common interaction with matter, the time-forward half of the stress wave normally interacts with the electron shells of the atom, giving electron translations forces. The time-reversed or anti-wave half interacts with the nucleus, giving the Newtonian 3rd law reaction (recoil) forces. The so-called "EM wave" in vacuum is a *gravitational* wave. It is a wave of oscillation of the rate of flow of time. It is rather like a sound wave in air, as Tesla pointed out, and it is a longitudinal wave, not a transverse "string" wave.

6. As pointed out by Nikola Tesla. Tesla was correct, and all the textbooks with their transverse "string" waves are in error. *There are no strings in the vacuum!*

7. E.g., see Clayton R. Paul and Syed A. Nasar, Introduction to Electromagnetic Fields, 2nd Ed., McGraw-Hill, New York, 1982, p. 113.

8. E.g., see Clayton R. Paul and Syed A. Nasar, *ibid.*, p. 100-101. See also Raymond A. Serway, Physics For Scientists And Engineers, With Modern Physics, Saunders College Publishing, Philadelphia, PA, 3rd Ed., Updated Version, 1992, p. 752-755.

9. Sommerfield's theory of metallic conduction was based on Drude's concept that the outer valence electrons of a conductor, which do not form crystal bonds, are free to migrate through the crystalline lattice structure, and so to form an electron gas. At room temperature, by quantum mechanical considerations, these free electrons are moving randomly, but at an average velocity on the order of  $10^6$  meters per sec. E.g., see Martin A. Plonus, Applied Electromagnetics, McGraw Hill, New York, 1978, p. 54-58, 62-3, 376-7. If you wish to know just how much power exchange is driving the collisions of the electron gas in a copper wire, here is an illustration. In one cubic centimeter of copper wire, the power exchange in and out of the electron gas is some 4 billion billion watts. That's the equivalent of 4 billion large electric power plants, each of 1,000 megawatt capacity. And one cubic centimeter of copper is a lump about the size of the end of our little finger.

10. E. g., see Raymond A. Serway, *ibid.*, p. 743-744 for a discussion and calculation of the electron drift velocity in copper.

11. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. 1, 1963, p. 2-4. In the classical EM theory launched by Maxwell and later modified by Heaviside et al, this problem did not exist for the original theoretical formulation. In that formulation by Maxwell, and continued by Heaviside, a material ether is assumed for the model. The Michelson-Morley experiments of 1887 destroyed the notion of the material ether, but the classical electromagnetics model has never been corrected to rectify its very serious foundations flaw in this respect.

12. Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, 1963, p. 283-287. Note on p. 283 that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. In spite of this, most classical electrodynamicists continue to adhere to the notion that the EM field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field. E.g., see J.D. Jackson, Classical Electrodynamics, 2nd Ed., John Wiley & Sons, New York, 1975, p. 249. Note that holding such a concept is tantamount to

holding on to the material ether, and assuming that the vacuum itself is "measurable" or "observable."

13. The formula  $F = ma$  is simply an algorithm for calculating the magnitude of the force. It states that "the magnitude of the force is equal to the magnitude of mass that is accelerating, multiplied by the magnitude of the acceleration." No such "equals" formula is a definition; it is only a calculational algorithm.

14. This falsifies one of the assumptions in the common notion of the scalar potential; that its gradient in vacuum is a force field. Let us falsify another part of the conventional concept of the potential. Take the notion of forcibly pushing in "against the field" of a trapped charge, a unit charge from infinity. At any point you stop, the work  $n$  you have done on the unit charge is equal to the value of the potential, so it is said. Actually, you pushed in a one-coulomb collector, and have collected and dissipated as work  $n$  joules of energy on that one coulomb. In other words, the energy density of the potential there, if collected and dissipated on a collector, is  $n$ , where  $n$  is joules per coulomb (NOT joules!). To prove it: suppose we go out on 10,000 radials from that point, and push in from infinity 10,000 unit charges from infinity. Then, the total work done "against the potential gradient" ("field", in common language) is now 10,000  $n$ . This makes no sense at all from the conventional view (which carefully refrains from multiple collectors!). It makes good sense from our view of the potential as having infinite energy but a finite energy density. In that case, the more collectors, the more energy collected, for dispersal as work.

15. For a discussion, see Y. Aharonov and D. Bohm, 1959.

16. Nikola Tesla, "The True Wireless," Electrical Experimenter, May 1919, p. 87.

17. The power in the load is always the time rate of dissipation of energy that has just been freely collected by the load for dissipation.

18. One can foresee a day in the not too distant future when any power company continuing to do such an unthinkable thing will have a class action suit brought against it by its customers!

19. T. E. Bearden, "Mechanism for Long-Term Cumulative Biological Effects of EM Fields and Radiation," March 1993 (in preparation).

20. Precisely analogous to a heat pump's operation - which as is well-known can readily be "over unity" in its efficiency. The maximum efficiency of the heat pump is about 8.22. E.g., see David Halliday and Robert Resnick, Fundamentals of Physics, 3rd Edition Extended, John Wiley and Sons, New York, 1988, Volume 1, p. 510-519. Good heat pumps normally have about 4.0 efficiency.

21. External power in an electric circuit refers to the dissipation rate (in the circuit's external load) of the potential gradients on the activated/potentialized electrons. Internal power refers to the dissipation rate in the circuit's bipolarity source.

22. We call strong attention to T.W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," Annales de la Fondation Louis de Broglie, 16(1), No. 1, 1991, p. 23-41. In this important paper, Barrett shows that a higher topology EM, such as quaternion EM, allows many things to be accomplished with circuitry that are not apparent to a conventional vector or tensor analysis of that circuitry. He also shows the Nikola Tesla's circuits accomplished this higher topological functioning.

23. It is easy to test this. Connect several different wires to a single source of potential gradient. With respect to ground, the end of each one of those wires has the same potential gradient as does the original source with respect to ground. If you connect 10 wires to a single "100-volt" potential gradient source, you will have ten 100-volt potential gradients appear. You can use

each of these ten potential gradients as a primary source. From each of these new primary sources, you can branch ten more, and now have a hundred potential gradient sources. You can treat each of these hundred new sources now as a primary source. To each one, you can add a switcher, collector, and external load, and drive all 100 loads. Or instead, you can put ten switcher/collector/external load circuits with each of the hundred new primary sources, and power all 1,000 external loads. Energy/potential is free from any source, so long as you do not demand power from the same source.

24. Per Whittaker and Ziolkowski, this VPF exchange -- from consideration of its wave aspects - consists of a harmonic series of bidirectional waves.

25. We are easily permitted to have free energy and violate the "local energy conservation law for a closed system." This is because the system is not closed, and so instead we must apply local energy conservation for an *open* system with a hidden source. In any given time interval, the energy taken (scattered) from the system as external work cannot exceed the sum of the unscattered trapped energy that was in the system initially and the unscattered energy that flowed into the system during that time interval.

26. You can actually do away with the separate collector, and utilize the doped copper DSC material itself as the collector. However, you will not be able to collect nearly so much energy in each collection cycle, for dissipating in the load in the subsequent work cycle.

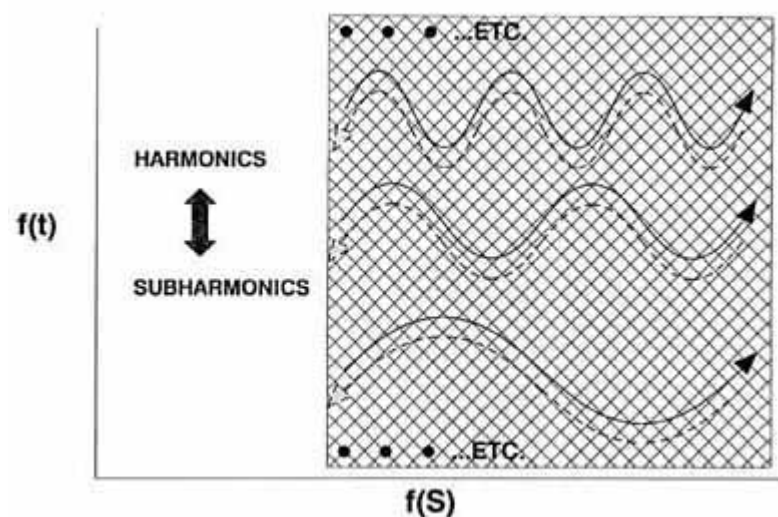


Figure 1a. Internal wave structure of the scalar potential.

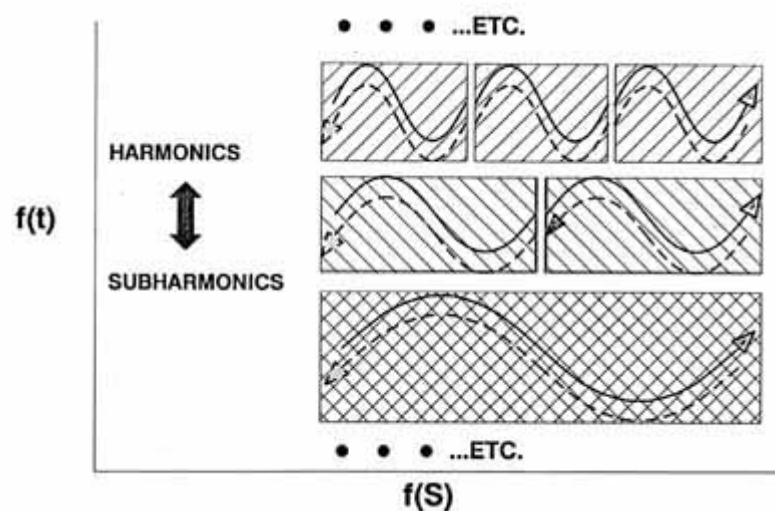
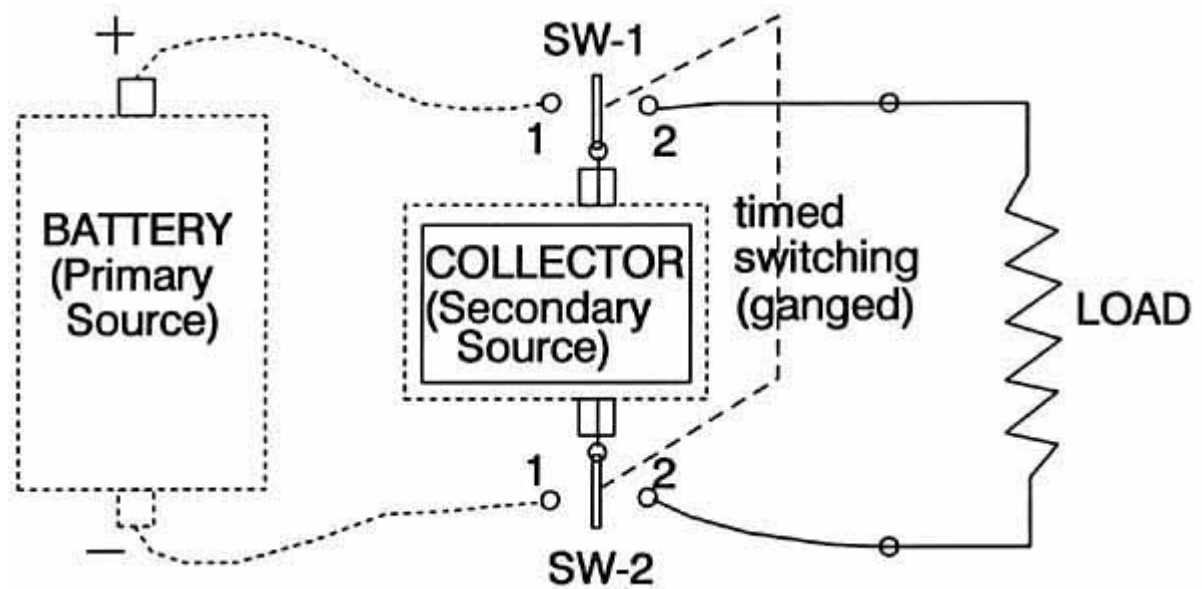


Figure 1b. Internal wave structure of the scalar potential (end).



Nondissipative components are shown by dotted lines.

Dissipative components are shown by solid lines.

Figure 2. The secret of extracting and using free energy.

[Additional Comments - 12 March 1993](#)

[Update - 5 February 1994](#)

[Update - 13 May 1994](#)

## ADDITIONAL COMMENT:

March 12, 1993

The present classical CEM model prescribes closed, energy-conservative type systems. If any electrical device works totally according to the accepted CEM model, it cannot and will not ever produce overunity. Simply put, you have excluded any hidden EM source that is freely replenished, and you have assumed continual killing of all energy input sources utilized. On the other hand, if one takes the view that the overunity electrical machines are possible after all, then -- *whether one is consciously aware of it or not* -- one has implied that classical CEM must somehow be substantially flawed. If it's flawed, then -- being a model -- some of its primary assumptions (postulates) and/or fundamental definitions must be in error. The proper place to go after "free electrical energy" is to rigorously examine CEM, over and over, until flaws are uncovered which allow a hidden, freely replenished source of input energy. In other words, one must find a way to "open" the electrical system to an inflow of energy from this source, without closing off the source. Until one finds such an "extension" of CEM, one has no model or concept which can reasonably be expected to provide overunity electrical energy output. Note also that, while the majority of the EM circuitry of an electrical overunity machine may obey CEM, at least one section -- where the source is freely tapped and the excess energy extracted -- must violate CEM.

I have spent many arduous years in this very process, right or wrong. The bottom line of my search is this: the only verified (by Whittaker and Ziolkowski) (WZ) "freely replenished river" of EM energy, that can act as the required "free energy" source for input to the would-be overunity electrical system, is the *potential*. But to understand the potential, completely new definitions are required for many entities, among them being energy, electrical charge, electrostatic scalar potential, voltage, etc. The present so-called "definitions" of these entities in CEM are either non-existent, entirely wrong, or quite unsatisfactory.

So far, the search has uncovered two major ways to tap the continually-replenished EM energy in the scalar EM potential:

(1) use of the inner WZ internal biwave structure of the potential as pump waves on/to a nonlinear material (such as the atomic nucleus), so that the nucleus becomes a pumped phase conjugate mirror. Then, by normal phase conjugate optical theory, simply inputting a small signal wave will produce an amplified phase conjugate replica (PCR) wave emitted from the mirror material, and this PCR will precisely backtrack the original input signal wave's path (see the *distortion correction theorem*) back out of the nucleus, out of the atom, and into the external circuit. There, the amplified PCR wave can be "filtered off" and sent to the external load, to power the load. The Floyd Sweet vacuum triode works precisely by this mechanism. Note particularly that Barrett has shown that higher topology EM (such as the original quaternion EM theory) can accomplish such "optical functioning" without the use of optical materials. To do Sweet's vacuum triode type process is thus theoretically possible with electrical circuitry alone, but one must have more than the current understanding of CEM, as Barrett pointed out. In other words, one can "open" any 4-space system by adding hyperspace (or subspace, if one insists on retaining Minkowski 4-space). One can thus have a hyperspatial source. Indeed, Ziolkowski and others have already pointed out that the WZ type decomposition of the scalar potential is essentially equivalent to having *complex sources*.

(2) The second way is to "trap the electron gas electrons" in a separate collector, feed "current-free potential" to the collector from a primary battery or other source of potential, and collect a bunch of excess energy (potential) in the collector's "penned up free electron 'horses'" waiting to carry the excess energy to the load and dissipate it there, once they have been released. Then, one switches the primary potential source away from the collector, while the "energy-loaded horses" are still trapped and straining at the bit, so that no work can be done -- by those agitated horses when they stampede out of there -- on the internal resistance of the primary

source, to destroy or reduce it. In the same switching action, the collector with its "snorting but still trapped electron horses" is switched across the load to form a totally separate circuit with it, having nothing at all to do with the original primary source of potential. Then, the agitated horses are released, and thunder out through the load, scattering their riders (excess energy) in all directions in the load, producing work/heat and powering the load. They will also charge on around to the reverse side of the collector, and kill its charge separation (kill its potential) as well, just as does any ordinary circuit.

The major disadvantage of method 1, as we presently have seen it done (however, check Barrett's demonstration that Tesla's patented circuitry is capable of doing it by circuitry alone), is that *time-reversed* electrical energy is produced. So Method 1 has some serious drawbacks. "Time-reversed energy stuff", which should stay in the atomic nucleus as Newtonian 3rd law reactions and 3rd-law energy exchanges, is dragged out. Unusual effects on biological systems can occur. Antigravity effects can occur. Other hidden processes in the universes, that affect the atomic nucleus, can be gated into the external circuitry, causing disaster. Monopoles can be deposited in the magnets, causing them to explode like hand grenades. Most of the new "massive time-reverse energy" phenomenology is still unknown. One cannot at this stage of ignorance adequately guarantee human safety. I presently don't see just how this kind of energy can pass an Underwriter Laboratories' testing and certification, until a lot more exhaustive work is done to understand the new phenomenology.

Method 2, however, yields ordinary, garden-variety, positive-time electrical energy. The method presented in the paper is my own discovery. No unusual time-reversed phenomena are involved. It would appear to be eminently practical to produce and certify power units based on Method 2. The phenomenology and risks are the same as for ordinary, time-forward power systems.

Method 2 has another unique characteristic: as a system, *all the subsystems are already in the literature and validated. They have just not previously been put together in this fashion.* So development of the system really represents an "integration" problem only, after one first does a little development of a proper degenerate semiconductor material (DSM). In other words, one first develops (and tests) the exact doping materials and percentage, to get a DSM material that is still a good conductor but has a relaxation time of -- say -- one tenth of a millisecond. One builds the wires from the battery to the collector out of this new DSM material. If one uses a capacitor for the collector, the plates must be made out of the new DSM material, not out of normal "pure conductor" material. Then one develops a switcher that switches in one tenth (or less) the relaxation time of the DSM, or in this case in one hundredth of a millisecond. That switching time, of course, is easy for any decent electronic technician or electronic engineer. One also develops a timing circuit that will (1) sense the status of the discharge of the collector energy through the load, and (2) trigger the switching at the correct times so that a smooth two-cycle (collect, discharge) process results. Note that the lengths of cycle one and cycle two are not necessarily equal at all. One may use multiple collectors/loads simultaneously, cascaded collectors/loads, etc. Hundreds of variations are possible and feasible.

It is not possible to do anything with this discovery in a normal manner. I would dearly like to be economically independent, so I could work full time in my efforts on free energy, antigravity, extended EM healing, cancer, etc. Many orthodox scientists will also fiercely resist this upstart notion of "overunity" electrical machines to the bitter end. When powerful economic interests realize one has such thing *for real*, one is certainly going to be stopped, jailed, or killed, or he may just "mysteriously vanish" and never be seen again.

So I just freely released and distributed my discovery of method 2, in the paper "The Final Secret of Free Energy". It is deliberately targeted toward technicians, junior engineers, and educated laymen. (The principles and definitions raised, however, can be debated to the nth degree by knowledgeable foundation scientists). The paper has already been distributed

worldwide. Now the *principles and definitions* are available to everyone. If they are in error, shortly that will be proven in spades. If they are correct, that will also be established shortly.

Anyone who wishes can develop and patent a particular application. There's no longer any way to stop this information from being disseminated and utilized. I hope that a flurry of development and patenting activity will result around the world. Get cheap, clean electrical energy to everyone. Bring on the electric auto, clean up the noxious auto exhausts, get rid of giant oil spills, and clean up the biosphere.

Tom Bearden



# Additional Information On *The Final Secret of Free Energy*

Update 15 February 1994  
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## Introduction

My associates and I have filed the first patent application on two electrical overunity processes and devices; one similar to what is outlined in *The Final Secret of Free Energy* [[Ref 1](#)] and an additional variation utilizing, as collectors, standard step-charged capacitors rather than degenerate semiconductor materials. In 60 to 90 days, we will have a very enlightening paper (more likely a book) ready on that. We also plan to file several more extremely fundamental overunity patent applications from additional phenomena and mechanisms that we have uncovered.

In this paper, it is assumed that the reader is familiar with the content of *The Final Secret of Free Energy*. Figure 1 shows the invention schematically, and we briefly summarize it as follows:

## Summary of the Invention

A method and apparatus for extracting bidirectional EM wave energy from the vacuum through the scalar potential gradient across the terminals of an electrical source, collecting the excess energy in a collector without entropy, then separately discharging the collected energy through a load to perform work, without sending the load current back through the primary source against its potential gradient; i.e., against its back emf. Removing the load current from the source thereby substantially reduces the production of work inside the source to dissipate its bipolarity; said internal dissipative work being well-known to be the cause of exhaustion of the source's ability to continue to furnish emf to the external circuit. By reduction of its internal dissipation, the source is enabled to furnish more energy for dissipation in the external load than is utilized to dissipate the source internally. Hence the source is enabled to operate with an overunity operational efficiency. The system permissibly operates as an "open" system, and extracts and utilizes excess EM energy from a free-flowing external source (the flux exchange between the surrounding vacuum and the bipolarity of the source), hence it can operate at an efficiency greater than unity without violation of the laws of physics, in a manner analogous to but entirely different from a heat pump. In this invention, it is not the purpose of the primary source to furnish current and dissipative power to the external circuit. The bipolarity of the source is utilized primarily as a dipole antenna to receive the bidirectional EM wave energy flow from the vacuum, and direct it without entropy through a switching unit to the collector. Conduction electrons in the collector are temporarily restrained while being overpotentialized by the excess energy being collected upon them. The collector and its overpotentialized electrons are then switched away from the primary source, and connected across the load as a separate circuit and closed current loop. The electrons in the collector and their excess energy are then automatically released to flow as current discharge through the load, releasing their excess energy to perform useful work in the load. The collector is then switched away from the load and back across the primary source, and another collection cycle is initiated. Iteration of the collection and discharge cycles provides power to the load. Additional collection and smoothing capacitances for smoothing the iterations and furnishing steady power to the load may be added as desired. The invention violates the

closed circuit practice of powering loads, but does not violate the conservation of energy law, the second law of thermodynamics, or any of the other known laws of physics.

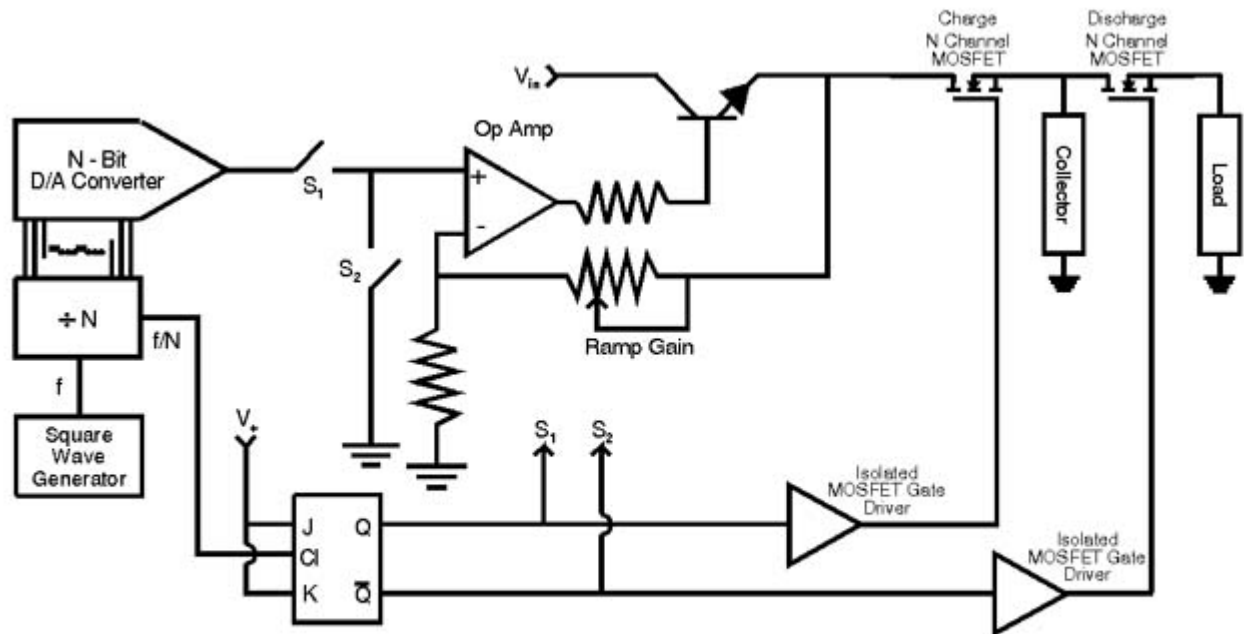


Figure 1A

**Figure 1a.** Type circuit utilized for ramp-up charging of a capacitor without work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

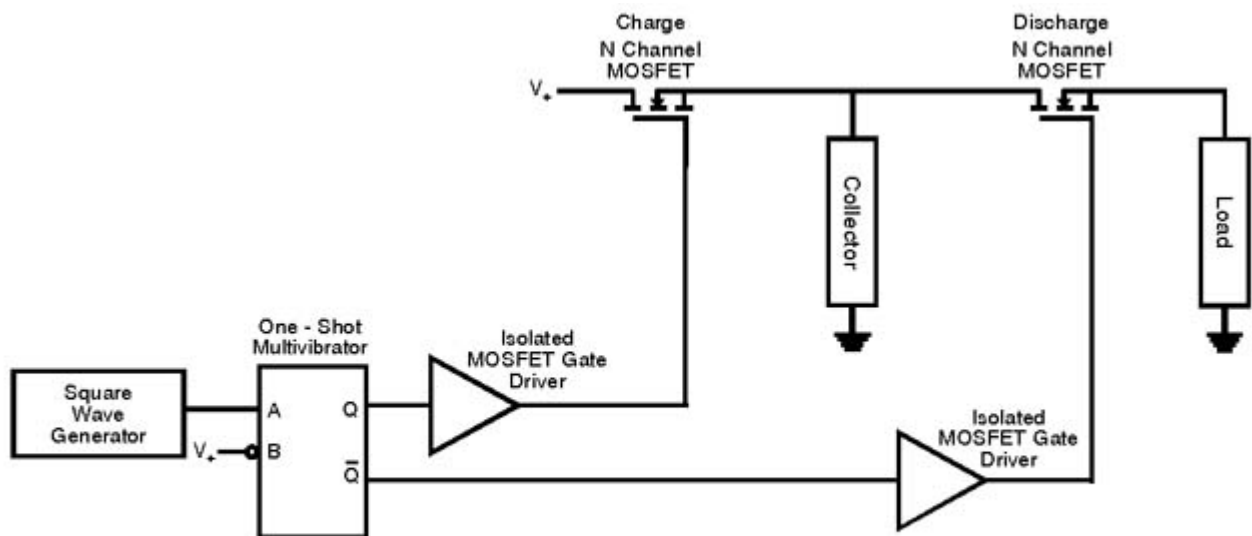


Figure 1B

**Figure 1b.** Type circuit for single pulse charging of a degenerative semiconductor collector without appreciable work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

## Use of Step-Charged Capacitor as the Collector

Fulfilling our search for a special material with the extended electron gas relaxation time for the collector, a material alloy composed of 98% aluminum and 2% iron is tentatively suggested. However, production of this alloy is particularly difficult, so we are still researching for a solution that is more easily manufactured.

Meanwhile, the necessity for using a special material for the collector has been bypassed by another procedure we have utilized. Rigorously one can use a *normal capacitor* as the collector, if one step-charges it in several hundred small incremental rectangular voltage steps (stair-step-charging). The proof that this can freely charge a capacitor with energy, without having to do appreciable work, is already known in the literature. You can charge the capacitor *without entropy* and essentially without drawing electron mass current. [[Ref 2](#),[Ref 3](#),[Ref 4](#),[Ref 5](#)]

Actually we consider the capacitor to be charged by *massless displacement current flow*, which for circuitry purposes we consider to be  $d\phi/dl$  -- a flow of pure potential (trapped EM energy) along a conductor or through the vacuum; i.e., under conditions where *mass displacement current flow* does not exist. [[Ref 6](#), [Ref 7](#)]

## Massless Displacement Current Is Freely Available From Any Source

The principle embodied in the invention is that one can extract all the free EM energy one wishes, from any electrical power source, as long as it is extracted via massless displacement current and not by *electron mass* flow current. [[Ref 8](#)] And one can freely collect this extracted energy from a source into an ordinary capacitor if one does it correctly, *because one can charge the capacitor via massless displacement current without expending any appreciable work inside the source to dissipate its dipolar separation of charges*.

## Every Electrical Source of Potential Is Already a Free Energy Source

We thus advance a revolutionary concept: all present power systems already utilize *free energy source-antennas*. However, the standard two-wire closed circuitry diabolically utilizes one-half the total free energy extracted by the source-antenna from the vacuum, to perform work inside the source-antenna to dissipate its dipolarity and hence to dissipate the *source-antenna (i.e. the receiver) itself*.

The source already acts as a "dipolar antenna" to continually receive "scalar potential" current  $d\phi/dl$  (massless displacement current) from the vacuum. [[Ref 9](#)] Previously scientists and engineers have simply ignored this special massless EM energy influx. For load-free (i.e., mass-current-free) conditions,  $(d\phi/dl)$  is continually received from the vacuum *by any dipole* (i.e., by any *dipolar source-as-an-antenna*), and the flowing energy is continually exchanged back and forth between the vacuum and the dipole.

This free energy exchange with the vacuum is also true of any two points in our circuit that possess an open-circuit voltage or potential difference between them. Two such points act as a dipole. Free energy dipolar antenna sources are everywhere; we just have to learn how to break the symmetry in their energy flux exchange with the vacuum, collect some of the freely flowing influx, and distribute that collected excess energy to an isolated load to *separately* power it.

In other words, we simply have to implement circuitry that operates analogous to the standard heat pump cycle.

# WHY PRESENT SYSTEMS HAVE COP < 1.0

Dissipative power inside source =  $V I_T$  and  $V I_T > F_L$

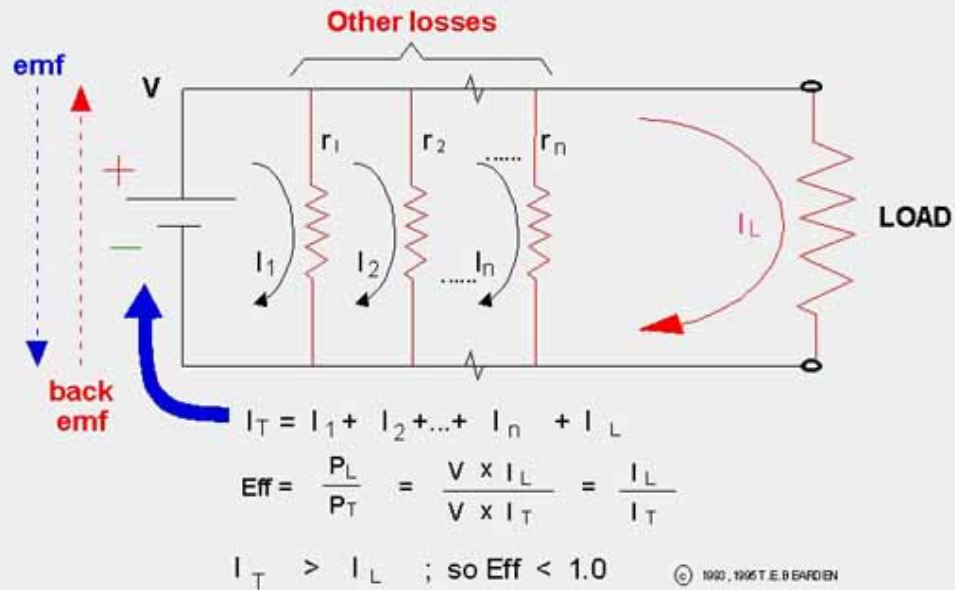


Figure 2. Why present electrical power systems have underunity operational efficiency.

## Conventional 2-Wire Closed Circuit Operation

In the conventional 2-wire system a load is added to the source-antenna, allowing circulation of electron current in a closed circuit through the load and then through the ground return line back to and through the dipolar source-antenna. The only useful reasons for this "closed circulation" of the electrons are (1) it is simple, *easy*, habitual, and accepted, (2) all our components, instruments, and methodologies are developed in accordance with this usage, (3) one uses the electrons as a *working material fluid* to receive, transport, and discharge excess EM energy, and (4) forcing the electrons back through the back emf *reloads* the spent electrons again with excess EM energy in the form of little  $\nabla\phi$ 's (excess trapped energy density) upon each recycled electron.

Some of the excess  $\nabla\phi$  collected upon the electrons is expended in the load as useful work, but one half of the total is expended in driving the spent (without excess  $\nabla\phi$ ) Consequently all conventional 2-wire circuits, which return *all external electron-flow current loops back through the source*, are always underunity devices, as is shown in Figure 2. Eerily these conventional sources are already free energy devices, which are unwittingly attached to circuitry specifically designed to utilize part of their freely received energy to deplete or destroy themselves, i.e., they are already *open systems receiving free energy from the vacuum, but they are hooked up and designed in a suicidal manner so as to use at least half of that freely extracted energy to re-close the system and shut off the influx of free energy*. Since at least some of the remaining half of the energy is lost in inefficiencies, frictional losses, etc., less than half the total free energy goes to the load. So there is always less useful work being done in the load than the destructive work being done inside the free-energy source-antenna to destroy it.

## Operational Efficiency

We define operational efficiency Alpha as the average power expended in the load to power it, divided by the average power expended inside the source to dissipate its dipolarity. If Alpha < 1, one has to externally furnish energy to do restorative work upon

the source to replace or offset that amount of destruction being done inside the source, if one wishes the source to continue to operate as an energy-receiving antenna. If  $\text{Alpha} > 1$ , then if the additional losses are minimal, the device can conceivably run itself while furnishing some energy to a load to produce useful work.

## **We Must Excise the Suicidal Closed Circuit To Achieve Overunity**

There is no mysticism in the overunity electrical device. The device is an open system that extracts excess energy from the vacuum, collects it, and transports it to the load to separately power the load. It is simply analogous to the standard heat pump cycle. It is also directly analogous to presently operating overunity systems such as windmills, waterwheels, solar cell arrays, and hydraulic turbines in a dam installation. All that we have done is to eliminate or dramatically reduce the standard cancerous mistake in conventional electrical power systems wherein much of the excess energy freely extracted from the vacuum by the already-overunity electrical source is then utilized to destroy the source's energy reception ability!

As we stated, in the conventional electrical device and circuitry, more destructive work is always done inside the source than is done usefully in the external load. Hence the conventional operational efficiency is always underunity.

### **Legitimate Overunity Systems Comply With Well-Known Requirements**

There are many alternative and well-known permissible free energy systems that operate at overunity operational efficiency: solar cells, windmills, hydraulic turbines, heat pumps, and water wheels, to name a few. All of these are open systems, receiving an influx of free energy from a natural energy flow, and collecting and gating some of that energy to be dissipated in a load to do useful work. All of them are permissible overunity devices, since (1) they are open systems, (2) they constantly receive a free energy influx from an external source, (3) they extract and collect some of this energy without dissipation, (4) they dissipate this collected energy in a load, and (5) the discharge process is totally separated and isolated from the "collection-from-the-source" process.

### **No Legitimate Overunity System Is Intentionally Made Self-Destructive**

Not a single one of these open overunity systems foolishly uses part of its freely extracted and collected energy to re-close the system and shut off its influx of free energy flow! What engineer would build a solar array such that, the moment the current started to flow, it powered a shutter arrangement to gradually close and shield off the solar array from the sun? Who would build a windmill so that, whenever the angled-blade assembly rotated in the wind to furnish power, a gearing feedback assembly also slowly caused the individual blades to rotate into a position parallel to the wind, thus stopping the windmill?

Yet this is precisely what the conventional electrical power system does with its external circuit. It deliberately utilizes half of the freely extracted energy to re-close the system and shut off the free energy flow between the vacuum and the source-antenna, by destroying the receiver-antenna!

However, this "suicide circuit" practice is guaranteed to keep the power meter on your home or business, and to keep the meter on the gas pump for fueling your automobile. Perhaps one may be forgiven for suspecting that, at the deepest levels of financial control,

this may be the real purpose in seeing that the existing interpretation of classical EM stays "as is."

## **All Electrical Power Sources Are Already Free Energy Receiving Antennas**

All conventional electrical power systems already contain fully functional free energy systems in their source component. Each conventionally designed system is, however, deliberately suicidal, since part of the system's own energy is utilized to work against itself and destroy itself. This is primarily due to the preoccupation of engineers with power and work. They do not consider the source as an energy source, but as a power source. Power being the time-rate of performing work, and work being the dissipation of energy, they are thus naturally conditioned to think of the "dissipation of the source" as its natural functioning.

In fact, hardly a single one of them is aware that EM energy itself is a free-flowing process. Only a finite collector possesses a finite collection of EM energy. In nature, the potential gradients of all dipoles are already rivers of free-flowing EM energy exchange with those dipoles, where the energy density is freely furnished and is essentially free for the taking. It is mind-boggling that we have all been conditioned to extract this free energy furnished by nature and the creator, but to always utilize half of the extracted energy to destroy the receiver-antenna and thus strangle the flow!

In our work, we simply have excised this "self-destructive" cancer and reworked the circuitry so that only a minimal amount of the freely extracted energy is utilized for internal destruction of the source-antenna.

## **Thermodynamics and Open Overunity Systems Not In Equilibrium**

In our approach we have an open system during every collection cycle, with an external source of energy and a continual energy influx. We have deliberately broken the local symmetry of the system's energy exchange with the vacuum, by spatially and temporally separating the energy collection and energy discharge phases. Overunity operational efficiency is permissible for such a system without violation of any of the laws of nature. Some of the influx of excess energy from the vacuum into the dipolar source antenna is transported without loss to the collector and collected. The collected energy in the collector is then separately discharged through the load, without any of it being discharged back inside the source-antenna. Note that we have broken local energy flow equilibrium but not global energy flow equilibrium.

The second law of thermodynamics, e.g., does not even apply to such an open system not in equilibrium. Classical thermodynamics cannot even compute the entropy of an open system not in thermodynamic equilibrium, as is well-known to thermodynamicists. [[Ref 10](#)]

What classical thermodynamics does have to say, is that such an open system must contain excess energy when compared to the closed system in equilibrium, because the closed system in equilibrium is in the maximum entropy condition. [[Ref 11](#)] Global conservation of energy is not violated, just as it is not violated in a windmill or in a heat pump, which are similar open systems. Local conservation of energy (which applies only to a closed system or to a system in total equilibrium) does not apply because the system is open and not in equilibrium.

## **Permissible Electrical Overunity Is Not Perpetual Motion**



An open system out of equilibrium need not conform to (1) the local (closed system, equilibrium conditions) conservation of energy nor to (2) the second law of thermodynamics (which assumes equilibrium conditions). It must and does conform to the global conservation of energy, just as does a waterwheel or windmill. We strongly stress that the overunity electrical device is not a "perpetuum mobile." [\[Ref 12\]](#) The electrical operations and systems we propose are perfectly permissible by the known laws of physics and do not violate any of them. We propose a permissible series of overunity electrical systems.

## The Heat Pump Analogy

In one way of viewing it, all we have done is utilize the potential as a more modern type of quantum mechanical fluid having hidden bidirectional flowing EM energy. [\[Ref 13\]](#), [Ref 14](#), [Ref 15](#), [Ref 16](#) QM already certifies that the potentials, not the force fields, are the primary causes of all EM phenomena. Contrary to classical EM theory, the force fields are effects in, on, and of the charged particles themselves. Consequently, if the potentials are the primary causes of all EM phenomena, then for free energy to perform work (free causes to collect and generate desired effects) we must turn to the potentials.

We have utilized a hookup and switching arrangement so that energy-free collection is totally separated from collected energy discharge in the load. In short, we have done what a normal heat pump does, when it uses the air with its thermal energy as a working energy-containing fluid. Consequently, overunity operational efficiency of analogous electrical devices is perfectly permissible, and not prohibited by the known laws of physics.

## An Electrical Power Source Is a Dipolar Antenna For Free Reception of Energy

An electrical power source is in fact only a dipolar antenna for reception of potential (hidden bidirectional Whittaker/Ziolkowski waves). All the current you run back through the back emf of the source, to perform dissipative work inside it, is something you yourself are doing to the source. It is not a priori a characteristic of the source!

If no work is done inside the source's internal bipolar separation of charges (i.e., if no electron or ion current is forced back up from the ground return line against the source-antenna's potential and therefore against its back emf), then the dipolar source-antenna will last essentially forever, or until something corrodes or breaks mechanically.

The flow exchange of energy between the vacuum and the dipolar source-antenna is freely driven by all the charges of the universe, in accordance with Puthoff's cosmological feedback loop. [\[Ref 17\]](#)

## Massless Displacement Current

Technically one is using massless displacement current to charge the capacitor, rather than electron mass flow current. It is real energy flow nonetheless; just in work-free, dissipation-free form. As is well-known, one plate of a capacitor already charges the other plate by just this very massless displacement current, transporting real EM energy across the gap between the plates in the process. The electrons themselves do not cross the gap.

Displacement current is already well-known to be "free" energy transport without any dissipation as power and work. By drawing massless displacement current only from the source-antenna instead of electron flow current, you can draw work-free, dissipation-free energy as long as you wish, as often as you wish, and as much as you wish, without ever



dissipating the source-antenna. You just have to collect it onto some trapped electrons or other charges, such as in a capacitor's plates, then switch the collected energy (charged capacitor) separately across a load, in a separate discharge circuit, to discharge through the load as work.

The real trick is to prevent the electrons in the circuit from moving and providing mass "energy dissipation" current inside the source during the collection process. In the original paper, we explained that this could be done by using as a collector a degenerate semiconductor material, with extended electron gas relaxation time. In this paper we have explained how this can be done by step-charging an ordinary capacitor as a collector. We have also included specific references proving (both experimentally and theoretically) that this is correct. With the requirement for special materials removed, there is no reason that a competent researcher cannot develop a step-charged capacitor device to prove it experimentally for himself or herself.

## **Requirement: Proof of Principle and Independent Test and Certification**

My associates and I are proceeding as rapidly as possible toward full-up "proof-of-principle" circuits for open release and certification or falsification by the scientific community and engineers at large. Soon we also expect to release to other researchers information on the kinds of new electrical phenomenology one meets in true overunity electrical devices. These are not in the textbook, at least with respect to electrical power systems. We give some indication of these phenomena below:

### **New Circuit Phenomena Must Be Mastered**

One meets unusual electrical phenomena in attempting to perform overunity electrical operations. For overunity, a priori one must "slip excess potential" through the circuit essentially without losses. That is, one must deliberately pass massless displacement currents through the circuit and at least through some of its components.

Solid-state switching components in particular exhibit unusual phenomena, to say the least, when excess potential is introduced into and through all their internal components inside modern semiconductors. An ordinary MOSFET, e.g., may have 25,000 separate internal components. It is as if someone crammed the entire electronic parts store inside it. Simple switches these semiconductors are not, when exposed to appreciable massless displacement current.

When one "slips in" some pure potential, by SWZ decomposition one has also slipped in some bidirectional EM pump waves. The nonlinear semiconductor materials will function as phase conjugate mirrors when suitably pumped, including at non-optical frequencies. Consequently pumped phase conjugate replicas, self-targeting, formation of quantum potentials, and modular variable effects sometimes begin to evidence. We will address and explain some of these effects in a future paper. For now, we simply state that they occur, and there is a host of extra phenomenology the experimenter may encounter.

However, an iron rule for the experimenter is that, for odd circuit behavior, first exhaust all "normal" causes before turning to the extraordinary causes. One will save oneself a great deal of grief by applying this Occam's razor.

Also in deliberately utilizing displacement current, one is actually employing an expanded, higher topology EM with additional degrees of freedom, similar to that pointed out by Barrett. [[Ref 18](#)] Consequently one encounters a host of additional higher topology EM

phenomenology. In particular one encounters nonlinear optical (NLO) functioning of the semiconductors at any and all frequencies, not just in optical bands.

## Overunity Electrical Devices Are Permissible By The Laws of Physics

The overunity electrical energy system is permissible by the laws of physics and is not in any manner perpetual motion. It simply extracts excess EM energy from an ubiquitous source, through a dipole as a receiver, and collects that excess energy, conducts it to the load, and separately dissipates it in the load to power the load, without using any of the collected energy to perform work inside the source to dissipate the source-antenna. It is directly analogous to a heat pump, which is well-known to perform at overunity operational efficiency under nominal conditions.

### In Conclusion

Primarily my associates and I believe we have corrected an ubiquitous error made in present power systems that prevents these systems from realizing their already-inherent overunity operational efficiency. We also firmly believe that the permissible electrical overunity device is an idea whose time has finally come.

### Notes and References

1. [T. E. Bearden, "The Final Secret of Free Energy,"](#) distributed over the Internet, Feb. 9, 1993. The paper was also published in Magnets, 7(5), pp. 4-26 (1993); in Explore!, 4(3/4), pp. 112-126 (1993), and in several other media.
2. For proof that you can charge an ordinary capacitor almost without entropy, see I. Fundaun, C. Reese, and H. H. Soonpaa, "Charging a Capacitor," American Journal of Physics, 60(11), pp. 1047-1048 (1992). A capacitor can be step-charged in small steps to dramatically reduce the entropy required to charge it. In the limit, a theoretically perfect capacitor can be fully charged without any electrical current or work at all, i.e., you can simply transport the excess energy density (the potential gradient) of the open circuit voltage of the source to the collector, and couple that  $\nabla\phi$  to the electrons trapped in the capacitor plates, without electric current from or through the source.
3. M. G. Calkin and D. Kiang, "Entropy Change and Reversibility," American Journal of Physics, 51(1), pp. 78-79 (1983).
4. F. Heinrich, "Entropy Change When Charging a Capacitor: A Demonstration Experiment," American Journal of Physics, 54(8), pp. 742-744 (1986).
5. V. K. Gupta, Gauri Shanker, and N.K. Sharma, "Reversibility and Step Processes: An Experiment for the Undergraduate Laboratory," American Journal of Physics, 52(10), pp. 945-947 (1984).
6. In most texts the treatment of displacement current is far from adequate. A better treatment than most is given by John D. Krauss, Electromagnetics, Fourth Edition, McGraw-Hill, New York, pp. 437-439, 547-549 (1992). Additional useful insight can be gained from David J. Griffiths, Introduction To Electrodynamics, Second Edition, Prentice-Hall, Englewood Cliffs, New Jersey, pp. 304-308 (1989). Problem 7.51 on p. 335 is also of direct interest, as is particularly the comment by Griffiths below the problem. Additional insight can be gained from David Halliday and Robert Resnick, with assistance by John Merrill, Fundamentals of Physics, Extended Third Edition (1988), John Wiley & Sons, New York, vol. 2, Article 37-4: Displacement Current, pp. 836-837, 839-841. The standard notion is to (1) retain the continuity of current, thus modifying and salvaging Ampere's law, (2) the displacement current is non-physical, i.e., it does not involve the transfer of charged mass, (3) focus primarily upon magnetostatics as to the results achievable by the displacement current, (4) retain the notion of  $\nabla\phi$  as E, a force field, thereby

focusing the notion of displacement current upon the change of the E field without the flow of charged mass, and (5) retain the confusion between electrical charge and charged mass that is inherent in the terms "charge", "current", etc. On p. 836 Halliday and Resnick point out that the displacement current is not derived per se, but is a "fit" based upon symmetry arguments, and it must stand or fall simply on whether or not its predictions agree with experiment. On the same page the displacement current is taken to be a linear function of  $d\phi/dt$ . For flow along a circuit where there is no electron mass current, it seems appropriate to replace  $d\phi/dt$  by  $d\phi/dl$ . It is also strongly indicated that one should clearly distinguish between charged mass current flow and the flow of massless charge, which is the approach we have taken.

A final indication of the way conventional scientists tend to regard displacement current is given by Martin A. Plonus, Applied Electromagnetics, McGraw-Hill, New York, pp. 446-448 (1978). Here Plonus uses the prevailing notion of the E field being altered by the flow of massless displacement current. As can be seen, the displacement current is relegated almost to a curiosity of capacitors, and not really too essential except just to "balance the books" and retain Ampere's current continuity.

We now wish to point out something very subtle but very rigorous. CEM erroneously uses  $E = -\nabla\phi$  to equate a mass-free potential gradient with a mass-containing force field. This "E-field" only exists at a point when there is a point-coulomb of electrical charged mass at the point. The real version of this equation should be  $E = -[(\nabla\phi) \bullet q]/|q|$ , where  $\nabla\phi$  is the potential gradient coupled directly to the charged point-mass at the point,  $q$  is the number of coulombs of charged mass at the point,  $q/|q|$  is one coulomb of charged mass, and  $E$  now is properly the force on and of each coulomb of the collected charged mass at the point.

Viewed in this manner, one can now see that the E field may be altered by flow of additional charged mass  $q$ , or by flow of massless additional  $\nabla\phi$ , or both. This is now in agreement with the manner in which it is approached in CEM, but more rigorous. Essentially it states we may increase the total "charge" (potential) at a point by either (1) moving in additional charged masses by use of a conventional current, or (2) moving in additional massless charge (potential) without any additional change in mass, or (3) a combination of the above.

However, let us apply this to a single charged particle or to a fixed number of them. No one seems to have noticed that the notion of altering the E-field of the collected point-charges at a point via method #2, i.e. by a flow of massless displacement current onto the fundamental charged particles themselves, a priori requires the electrical charge of each fundamental particle to change. Hence it **falsifies the notion of quantization of charge**.

Also, no one seems to have noticed the electric power implications: if it is known that one can charge a capacitor purely by displacement current, then one can charge up the capacitor with energy, without any dissipation of the source, because only charged mass current through the back emf of the source does that. So one can then disconnect the charged capacitor and separately connect it in a closed circuit with a load, to discharge through the load and furnish free work in the load (free in the sense that no dissipation of the primary source occurred in either the collection of the energy or in discharge of the collected energy through the load as useful work). Free energy, overunity electrical devices, etc. should then be readily apparent and permissible, from the known nature of displacement current and capacitors alone.

7. Maxwell assumed a material ether, which was assumed to be a thin material fluid filling all space. Hence force (which must have mass as a component due to its definition  $F = d(mv)/dt$ ) could be modeled as existing in the Maxwellian ether, for there was already thin matter present everywhere. Hence in Maxwell's EM the incorrect notion resulted that force fields existed in the vacuum. Oliver Heaviside continued this erroneous assumption, since in fact he hated the potentials, regarded them as mystical, and stated that they should be "...murdered from the theory." Also, electricity was thought to be a similar thin material fluid. So the material electric fluid could and did flow through the fluid vacuum also, giving the notion of the material electric flux density for  $D$ . Consequently, the units of  $D$  are coulombs (charged mass rate of flow) per square meter. Rigorously, that material  $D$  flux exists only on and of charged mass that moves; it cannot and does not exist in vacuum. Only potentials and potential gradients exist in vacuum. However, after Maxwell's formation of his theory, the Michelson-Morley experiment destroyed the material ether (not the ether per se, but its material nature). So electricians then simply proclaimed that they were no longer using the material ether, and that such did not exist! Not a single Maxwell/Heaviside equation was changed. The material ether is still very much assumed in classical EM (CEM) theory, and so the theory is accordingly very seriously flawed. Since CEM also has no adequate definition for either electric charge or the scalar potential, the problem is confounded.

To clarify this problem, one must separate the notion of electric charge from the notion of mass. The electrical charge of a charged mass is the virtual photon flux exchange between the surrounding vacuum and that mass. Since a virtual photon flux is just a scalar potential, the electron's massless electrical charge is simply its scalar potential. It can now be seen that, if we forcibly remove the notion of "mass" from  $D$  in the vacuum, or in a charged material medium where the charged masses cannot move, then the "material electric flux concept" portion of  $D$  turns into  $d\phi/dt$ , a change in the nonmaterial electric flux. However,  $D$  is a vector and hence has a "net flux" spatial directional aspect which  $d\phi/dt$  alone does not possess. It follows that the value of  $d\phi/dt$  at a spatial point actually represents the result of change of the value of  $\phi$  at that point, as a function of time. Thus a directional operator must first be invoked upon  $\phi$  at the point, to provide a direction for the spatial  $\phi$ -current after the  $d/dt$  operator is invoked. The appropriate operator to give directionality to  $\phi$  is  $\nabla$ , so that  $D$  in vacuum or in an electron-current-free charged medium becomes a function of  $d/dt(-\nabla\phi)$ . Conventionally, the use in the literature of  $E = -\nabla\phi$  immediately provides that  $d/dt(-\nabla\phi)$  at a point results in  $dE/dt$ , or the time rate of change of the E-field at that point. If no distinction is made between charged mass current flow and massless charge current flow, this would be true in either vacuum or material media. However, we wish to specifically distinguish between massive displacement current and massless displacement current. So we point out that the increase  $dE/dt$  in the magnitude of the E-field at, on, and of a charged particle at a point, can be due to either (1) the flow of mass current to build up the number of point coulombs at that given point, where each coulomb has a fixed massless charge (potential), or (2) the flow of massless current  $d/dt(-\nabla\phi)$  so as to alter the value of  $\phi$  at that point, evidenced by a fixed number of coulombs of charged particles, **each of which has altered its individual potential and therefore its individual massless electrical charge.**

So what "flows" when the charged masses are frozen or absent is simply a current of scalar potential, resulting in a change of the potential upon fixed point charges of  $d\phi/dt$ . This is what crosses between the plates of a capacitor, e.g., which is where the notion of "displacement current" originated in the first place. (See, e.g., Halliday and Resnick, 1988, *ibid.*, p. 836, Sample Problem 1, for expression of the displacement current as  $d\phi/dt$ , neglecting constants of proportionality). This is also

what flows when one connects multiple open circuit pairs of conductors to a source.

It remains to examine Maxwell's equation  $\nabla \cdot \mathbf{D} = \rho_v$ . If mass displacement current cannot flow, then there exists no divergence of the mass current portion of  $\mathbf{D}$ . However, massless displacement current can still flow, and there can exist divergence of that component. There are now three aspects to that equation: (1) the case in the vacuum, where there exists no physical  $\rho$  and hence no  $\rho_v$  as such because of the absence of mass, (2) the case in a material medium, which is the normal case already treated in the standard equation and need not be further addressed, and (3) the case in a material medium where, nonetheless, physical charged masses such as electrons cannot move, but massless charge currents may still move. Only cases 1 and 3 need to be addressed, and they have the same treatment.

We address the one dimensional case, which is sufficient for circuit current flow considerations. First we replace  $\mathbf{D}$  with  $(\mathbf{D}_\phi + \mathbf{D}_\rho)$ , where the first term is the massless displacement current and the second term is the massive displacement current. In other words, we account separately for charged mass flow and for massless charge flow. Similarly, we express  $\rho_v$  as two components, one massive and one massless, so that  $\rho_v = d/dl(\phi + m_v)$ . For case 1 and case 3 we make  $m_v = 0$  and  $\mathbf{D}_\rho = 0$ . For those cases, we have  $\nabla \cdot \mathbf{D} = \nabla \cdot \mathbf{D}_\phi = d\phi/dl$  (since current along a wire is a one-dimensional flow). We specifically note that  $\phi$ ,  $\mathbf{D}_\phi$ ,  $\nabla \cdot \mathbf{D}_\phi$ , and  $d\phi/dl$  are not necessarily conserved quantities, since  $\phi$  is mathematically decomposed into bidirectional EM waves, and is hence a freely flowing process. When symmetry is broken so that equilibrium conditions no longer exist, one or more of these quantities will not be locally conserved.

What has actually been done here is to open the classical EM model to the free exchange of massless EM energy that is always ongoing between any charged particle's mass and the vacuum. We then account separately for the flow of the energy exchange (of the massless charge flow) and the flow of the physical receiver/transmitters (i.e., for charged mass flow). Our switching arrangement to separate the collection and discharge cycles constitutes a permissible "Maxwell's Demon" which breaks symmetry, hence breaks equilibrium and opens the system as required. Since such a system can continually receive a free influx of energy from its external source, such a system can permissibly exhibit overunity operational efficiency without violating the laws of physics.

8. Displacement current is already known to be lossless transport of energy without entropy, i.e., without work. For a typical confirmation see Jed Z. Buchwald, From Maxwell to Microphysics, University of Chicago Press, Chicago and London, p. 44 (1985). Quoting: "...no energy transformation into heat occurs for displacement currents."
9. We strongly stress again that the scalar potential may be mathematically decomposed into a harmonic series of hidden bidirectional EM wave pairs. Each wave pair consists of an ordinary EM wave together with its superposed phase conjugate replica wave. Thus internally the scalar potential gradient across a source represents a bidirectional exchange of EM wave energy with the surrounding vacuum. See notes 13, 14, 15, and 16 below for references confirming the decomposition of the "fixed" potential into a dynamic flow process and energy exchange process.
10. For confirmation see Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, pp. 283-287 (1963). See particularly p. 283, which emphasizes that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. See p. 17 on the limitations of

a "natural law"; p. 213 and 215 for limitation of thermodynamic analysis to equilibrium states; and see p. 216 for definition of entropy. See p. 217 for the fact that the entropy for non-equilibrium conditions cannot be computed, and the entropy of a system not in equilibrium must be less than the entropy of the system in equilibrium, i.e., for a system to depart from equilibrium conditions, its entropy must decrease. Therefore its energy must increase. Thus the energy of an open system not in equilibrium must always be greater than the energy of the same system when it is closed and in equilibrium, since the equilibrium state is the state of maximum entropy.

11. Lindsay and Margenau, *ibid.*, p. 217.
12. The basic notion in the perpetual motion conundrum is that somehow a closed system in thermodynamic equilibrium could perpetually provide external energy to a load outside the system. Such a notion is an oxymoron; if the system is closed, no energy can escape or enter, hence the system could not furnish energy externally to power a load or even just to radiate away. My associates and I have not in any manner proposed such a system or entertained the notion that such might exist. But it is well-known that open systems not in thermodynamic equilibrium can freely extract energy from their environment and furnish energy to power a load, and that is precisely what we have proposed.
13. G. J. Stoney, "XLVIII. On a Supposed Proof of a Theorem in Wave-motion, To the Editors of the Philosophical Magazine," *Philosophical Magazine*, 5(43), pp. 368-373 (1897).
14. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, vol. 57, pp. 333-355 (1903). Whittaker mathematically decomposes the scalar potential into a bidirectional series of EM wave pairs in a harmonic sequence. Each wave pair consists of the wave and its phase conjugate. (We have pointed out elsewhere that such a wave pair is a standing electrogravitational wave and a standing wave in the curvature of local space-time). To see that all classical EM can be replaced by interference of two such scalar potentials (i.e., by the interference of their hidden multi-wave sets), see E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proceedings of the London Mathematical Society*, Series 2, vol. 1, pp. 367-372 (1904).
15. Richard W. Ziolkowski, "Localized Transmission of Electromagnetic Energy," *Physical Review A*, 39, p. 2005 (1989). For related material, see Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," *Journal of Mathematical Physics*, 26, pp. 861-863 (1985). See also Michael K. Tippet and Richard Ziolkowski, "A Bidirectional Wave Transformation of the Cold Plasma Equations," *Journal of Mathematical Physics*, 32(2), pp. 488-492 (1991).
16. C. W. Hsue, "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," *IEEE Microwave and Guided Wave Letters*, 3, pp. 82-84 (1993).
17. H. E. Puthoff, "Source of Vacuum Electromagnetic Zero-point Energy," *Physical Review A*, 40(9), pp. 4857-4862 (1989). Presents Puthoff's self-regenerating cosmological feedback cycle for the source of the vacuum EM zero-point energy.

Our comment: Over any macroscopic range, the vacuum fluctuations ( $\nabla\phi$ 's) of the ZPE sum to a vector zero translational resultant. The individual ZPE components ( $\nabla\phi$ 's), however, are still present and active, and their energies are present as well. That vector zero can thus be considered to be a gradient-free potential, or the vacuum potential, since it contains enormously dense, trapped EM energy. So the vacuum potential -- pure space-time (ST) itself -- contains enormously dense EM energy.

One can then apply the Stoney/Whittaker/Ziolkowski (SWZ) methodology to decompose this powerful vacuum potential, i.e., the vacuum, and in fact space-time (ST) itself, into an incredibly dense flux of EM energy. Space-time is revealed to be an incredibly powerful electrostatic scalar potential. The electrical charge (potential) of a charged particle is a small potential gradient in the ST potential, i.e., it is a slight alteration of the local ST potential. Via Puthoff's self-regenerative feedback cycle, the energy flowing in this potential is being exchanged between the local source and all the charges everywhere in the universe. This "potential gradient" or electrical charge itself can be decomposed via the SWZ approach, and becomes a bidirectional EM wave pair exchange of excess EM energy between the vacuum/ST and the charged particle's mass. The potential gradient between the ends of a dipole have similar decompositions, with the additional characteristic that the negatively charged end of the dipole receives the forward-time waves from the SWZ wave pairs, and the positively charged end receives the time-reversed waves.

Our final comment is that Cole and Puthoff have rigorously shown that, in theory, the vacuum EM energy can indeed be extracted. See Daniel C. Cole, and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," *Physical Review E*, 48(2), pp. 1562-1565 (1993).

18. T. W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), pp. 23-41 (1991). Barrett shows that a higher topology EM model (e.g., EM expressed in quaternions) allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. As an example, one may meet optical functioning without the presence of optical materials.



## LEGEND:

● = filled black dot (like scalar product) in original text  
 $\emptyset$  = Greek letter  $\emptyset$  for the Scalar Electrostatic Potential field  
 $\nabla$  = Greek letter Nabla (upside down triangle)  
 $|x|$  = Absolute value of x (only positive)  
 uf = microFarad

**PRACTICAL OVERUNITY ELECTRICAL DEVICES**

(C) T.E. Bearden  
 May 13, 1994

**Introduction**

Recently, my associates and I have filed a patent application on what we believe will at long last reveal the mechanisms for practical overunity electrical devices. It is my purpose in this paper to provide additional information augmenting my former two papers, (1) "The Final Secret of Free Energy," Feb. 1993, and (2) "Additional Information on the Final Secret of Free Energy," Feb. 1994. In this present paper, with the permission of my colleagues, I release the gist of our work on separation of electrical charge into two coupled components  $\emptyset \bullet (m)$ , where  $\emptyset \bullet$  represents the massless charge of the charged particle or mass,  $\bullet$  represents the fact that it is coupled or trying to couple to the special mass that makes up charged particles [i.e., the special kind of mass that will couple to the virtual photon flux density that is represented by the symbol  $\emptyset$ ], and  $m$  represents the inert mass component of the charged mass. Since not all masses will couple with  $\emptyset \bullet$ , we indicate the type of mass that will couple with it, as  $\bullet m$ . Thus a charged mass is composed of  $(\emptyset \bullet) \bullet (\bullet m)$ , which we consolidate to  $(\emptyset) \bullet (m)$ .

**Charge Is Not Quantized**

An interesting immediate result is that the massless charge of a fundamental charged particle is not quantized; it changes as a function of the background potential in which it is embedded. So it is discretized as a function of the background potential (i.e., of the virtual photon flux exchange between it and the surrounding vacuum). Otherwise, e.g., there could be no  $\nabla \emptyset$  created on any charged particle  $q$ , and hence no E-field, and hence electrons would not move in our present circuits. Since they do move in our circuits, charge is not quantized.

**Electrical Current Has Two Components**

The first key to understanding free energy electrical and magnetic machines is to realize that electrical current actually consists of two currents coupled together. Our treatment of an electric charge as a coupled system  $(\emptyset) \bullet (m)$  also means that electron current  $i = dq/dt$  is comprised of two coupled components  $[(d\emptyset/dt) \bullet (dm/dt)]$ . This follows from simply invoking the operator  $d/dt$ ; i. e.,  $d/dt[(\emptyset) \bullet (m)] = (d\emptyset/dt) \bullet (dm/dt)$ , which is the same as  $[(d\emptyset/dt) \bullet] \bullet (\bullet dm/dt)$ . The component  $(d\emptyset/dt) \bullet$  is the known but not well understood massless displacement current, while the component  $\bullet (dm/dt)$  is the mass displacement current, and the coupling operator  $\bullet$  means "coupled to" or "trying to couple to". The coupling operator represents a real physical operation: the exchange of virtual photons between the vacuum potential and the charged mass. Any potential  $\emptyset_1 \bullet$  is considered to be a potential that is superposed upon the ambient vacuum potential  $\emptyset_0 \bullet$ , to provide a potential  $(\emptyset_0 + \emptyset_1) \bullet$ . The ambient vacuum potential does not disappear merely because we add another potential to it!

**Confusion In Present Electrical Physics**

We point out that, in physics books of note, the overt coupling effect is essentially unknown or ignored because physics presently has not defined either the scalar potential or the electrical charge. The conventional theory simply uses an "inert" expression  $d\emptyset/dt$  to represent the displacement current (and another inert expression  $q$  for a charged mass), and most theoreticians are uncomfortable even with that. The displacement current is also confused with force by equating the displacement current  $d\emptyset/dt$  to  $dE/dt$ . In turn, this means that  $d\emptyset/dt$  is confused with mass, hence with  $dm/dt$ , which latter is also a component of  $dq/dt$ .  $m$  is always an \internal component\ of force, as is known in foundations of physics but this fact continues to remain completely oblivious to the electricians. [Good electrical theorists do admit that there is no force in the vacuum; and that the force associated with the E-field is evidenced

only in the interacting mass. However, they continue to maintain the E-field (force per point-coulomb of charged mass) in the vacuum, when there are no point-coulombs of charged mass there!

### Mass Is an Internal Component of Force

It is easy to show that mass is always a component of force: We will simply define *force* precisely. We first insist that no equation can be used as a definition; an equation simply states that the magnitude of one of its sides and the magnitude of the other side are equal. (The length of a board and the length of a human may be equal, but writing that as an equation has absolutely nothing to do with the definition of either a board or a human). So we will insist that any true definition must be an *identity*.

We define force  $F$  as  $F \equiv d/dt(mv)$ , whereupon mass is a component of force *a priori*. It follows that, if we define the E-field  $E$  as the force per coulomb, we are defining it as the force existing at a point and having a point-coulomb of charged mass as one of its major components. We may accurately now define  $E$  as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ , where the absolute value symbol in the denominator is essential,  $q/|q|$  being one point-coulomb. [We leave as an exercise for the reader the further reduction of this definition by treating  $q$  as  $\bullet(\Phi \bullet m)$ ].

At any rate, with the new and correct definition of the E-field, one can see that the flow of displacement current ( $d\Phi/dt$ ) upon a collector such as a rigid capacitor, containing a fixed charge  $\bullet(\Phi \bullet m)$ , will result in the formation of an excess  $\nabla \Phi \bullet$  upon those restrained charges in the capacitor plate, so that there is created an  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ . Since the conventional theory considers the antigradient of the potential as an E-field, then one can now see the exact mechanism that creates this E-field that grows upon the capacitor (across its plates) as it charges. In fact, the  $q/|q|$  cannot change in a capacitor if its plates and dielectric are immovable. Instead, in that case, the  $\Phi \bullet$  portion of the trapped  $\bullet(q)$  changes, producing the  $(\nabla \Phi) \bullet$  change. Since the  $(\nabla \Phi) \bullet$  component is coupled to the mass component of the fixed  $\bullet q$  as  $(\Phi + \nabla \Phi) \bullet m$ , then an E-field is created and exists as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ .

### An Ideal Capacitor Is an Electron Current Blocker

We point out that, if the capacitor's components are ideal, *completely rigid*, and do not physically move, then the capacitor is a " $\bullet dm/dt$  blocker." If the charges really were frozen in place, then the potential would flow across the plates at the speed of light, via the flow of excess massless displacement current  $d\Phi/dt \bullet$ . In that case, an ammeter would not show the classical "exponential fall-off" of the current with time; the electron current  $dq/dt$  would occur as a single-point Dirac delta function at  $t=0$ , and would be zero thereafter. And no electrons would be able to move in zero time. The voltage would show an instantaneous adjustment to the charged value with a single step-function, and the capacitor would charge up fully, instantly, with no work (energy loss) whatsoever being done. And this charge-up of the capacitor would not dissipate in the slightest the source furnishing the voltage; there would be no electron current  $dq/dt$  through the back EMF of the source, hence no work inside it to deplete its separation of charges.

### Problems With Ordinary Capacitors

However, most ordinary capacitors are much more than just an ideal capacitor. The plates move, the dielectric moves, etc. due to the forces created upon them by the E-fields created upon the trapped charges in them. The spatial translation of the resulting force moving the plates constitutes work; i.e., it dissipates some of the flowing  $d\Phi/dt$  energy. Each movement of the plates and/or dielectric carries with it all its internally trapped charges. The movement of those charges constitutes a substantial longitudinal electron current  $dq/dt$ , when compared to the longitudinal "drift" electron current in normal circuits. [Electrons spend most of their time moving radially in a wire, not down it.] This "moving plate and its transported charges" make an electron current, which pumps the inert electrons in the ground return line back through the back EMF of the source, depleting the source. Consequently, the ordinary capacitor will simply release as much energy as work (to move the plates and dielectric) as it stored. Hence, it will also produce dissipation of the source via the amount of energy stored in the capacitor. You still get "free energy" stored in the capacitor, but also dissipate the source by an equal amount.

### Rigidized Capacitors Must Be Used

Only rigidized capacitive collectors are useful in free energy devices. Such capacitors are in fact actually available, e.g., as calibration standards, but they are extremely expensive (\$400 to \$2,000 or so each, for a capacitance reaching about 1 uf).

So, capacitive type collectors must be rigidized, if used in overunity circuitry. Even so, in a single integrated circuit, although one collects free energy, one will use half of what was collected to dissipate the source. Not all the remaining half will be discharged

through the load; some will be discharged in other circuit and component losses. Hence, there will always be less work done in the load than is done in the source to kill it, by a conventional two wire single closed circuit. In my second referenced paper (Feb.94), I included precise proof that this is true. One must use energy collection and shuttling between two isolated circuits, and the load discharge current must not pass back through the primary source of potential.

We have previously provided precisely how to utilize capacitive collectors in our two referenced papers. We point out here that the capacitors must be calibration standard capacitors, or specially made rigidized capacitors.

### **It Does Not Require Electron Current to Charge An Ideal Capacitor**

For the benefit of the skeptic, this is already proven. We simply list references (2) and point out the equation that represents the energy  $K$  in a charged capacitor. Here we have  $K = \frac{1}{2}(CV)^2$ . It is totally the displacement current  $d\Phi/dt$  flowing (from a higher potential) onto the charging plate that produces the higher potential  $\Phi$  on that charging plate, and hence a  $V$  between the two plates, one of them (the "ground" side) being held at a constant potential. The mass displacement current component  $dm/dt$  of the electron current  $dq/dt$  has nothing whatsoever to do with energy accumulation; it has only to do with the dissipation of energy that is happening simultaneously in all losses and loads in the circuit loop.

We reiterate that most ordinary capacitors have terrible internal movement, and accomplish as much energy dissipation as they do energy collection by permitting  $dq/dt$  and work performed upon the plates and dielectric to move them. The standard two-wire circuit also guarantees that all such  $dq/dt$  current "through" the capacitor is passed back through the source against its back EMF, doing an equal amount of work in the source to dissipate its separation of charges and "destroy" the source.

An ideal capacitor does not pass  $dq/dt$ , but only massless displacement current as theorized by Maxwell to save current continuity in a circuit containing a capacitor, and hence to save Ampere's current law. That is, an ideal capacitor is a  $dm/dt$  blocking device. However, the capacitors utilized in normal circuits are not ideal capacitors at all. By allowing the plates to move, electron current  $dq/dt$  is created on both sides of the capacitor. Otherwise there would not be a ground return  $dq/dt$ , but only a ground return  $d\Phi/dt$ . This  $d\Phi/dt$  would not and does not push electrons back up through the source against its back EMF; else the ground side of the source, which is engaged in continuous  $d\Phi/dt$  exchanges with the vacuum, would produce destructive amperage  $d\Phi/dt$  in the battery or potentialized source, against its back EMF, while it was simply sitting on the shelf. In fact, a flow of  $d\Phi/dt$  continually runs from the vacuum to the positive terminal, then through the inside of the battery to the negative terminal, and thence back to the surrounding vacuum. Also, the incoming flow from the vacuum "splits" at the positive terminal, where one branch flows inside the source to the negative terminal, and the other branch flows through the external circuit to the ground return line, and thence to negative terminal and back to the vacuum. In the external circuit, the  $d\Phi/dt$  hooks to free electrons and moves them as ordinary  $dq/dt$ . In the internal circuit inside the source, the electrons are restrained, hence they only move when their restraint is overcome.

### **Displacement Current $d\Phi/dt$ Is Real**

In recent years, SQUID detectors have been utilized to detect the magnetic field created between the plates (at right angles) by the displacement current  $d\Phi/dt$  between the plates, providing strong evidence that displacement current is physically real. The best proof that it is real is a charge blocking device, two isolated circuits using energy collection and shuttling, and overunity powering of loads in the secondary circuit.

### **A Problem With Ammeters and Measurement of $d\Phi/dt$**

Note that an ammeter cannot differentiate between displacement current  $d\Phi/dt$  and normal current  $dq/dt$ . In the ammeter, the sample  $d\Phi/dt$  will couple to free electrons, producing a normal  $dq/dt$  inside the ammeter. The driving of this  $dq/dt$  through a precision resistance, e.g., is measured and the instrument is calibrated to show the  $dq/dt$  amperes flowing. One of the major needs of free energy researchers is the development of a good current meter that will differentiate between  $d\Phi/dt$  and  $dq/dt$ , and measure each one. Short of using a mass spectrometer to differentiate the mass current  $dm/dt$ , and comparison of those mass current measurements with an ammeter's measurements of the "current"  $dq/dt$ , and calculating the  $d\Phi/dt$  from that, I presently know of no way to precisely and simply measure and separate the two current components. I have been thinking of utilizing a multi-channel sampling meter set arrangement, where one channel uses a  $dm/dt$  blocking device such as the Fogal semiconductor in this respect, but have not yet developed the complete concept.

### **Better Solution: A Charge Blocking Device**

A better solution than the capacitor or capacitive collector is the use of a special rigid solid state "charge blocking device", such as a Fogal semiconductor, to enable the current separation into two components, blocking of the mass flow component, and passage of the massless displacement current component. *In overunity electrical devices, it is massless displacement current  $d\phi/dt$  that must be separately passed down the primary circuit and collected in the collector as an E-field or an H-field. This provides "free" energy that has been extracted from the vacuum, via the potential difference between the terminals of the source antenna, and collected and stored in the appropriate field, without work.* The collected free energy may then be transferred to the isolated load circuit by a variety of means, for separate discharge through the load without return of  $dq/dt$  through the source.

### The Fogal Semiconductor Meets the Charge-Blocking Requirements

Fogal's marvelous semiconductor blocks passage of electrons into its output terminal, but passes displacement current  $d\phi/dt$  into it. The semiconductor is powered by (receives) normal electron current and excess  $d\phi/dt$ , but outputs pure massless displacement current  $d\phi/dt$ . A charge blocker that passes  $d\phi/dt$  is ideal for our overunity mechanisms, enabling them to be readily obtained as we shall shortly see.

### Energy, Flow, Finite Amount of Energy, and Collectors

We accent that the flow of energy in an electrical circuit is purely by means of the massless displacement current component ( $d\phi/dt$ ). The flow of the mass component  $\bullet(dm/dt)$  represents the "flow of work" (*energy dissipation*) in the circuit. Power is rigorously the time rate of doing work, and electron current  $dq/dt$  is a part of power. It has nothing whatsoever to do with the time rate at which *energy is transported without loss*; instead, power represents the rate at which energy "leaks" or is "lost" during its transport.

All measurement is work, not energy. Energy cannot be measured, even in theory, a priori. Energy is also a flow process, and never a finite amount in one location. A specific differential of energy flow may exist on a specific finite collector. However, it only represents a certain constant differential amount of energy flow compared to the universal vacuum energy flow or some other flow reference point. It is like a whirlpool in the river. Energy is like the flowing water, and an "amount" of energy is like the amount of water in the collecting whirlpool form (between its input flow and its output flow) at any time. Obviously, energy (ordering) forms can come and go; the water flow itself remains. Any "magnitude of energy" is always a "trapped" amount of energy in a "collector" (form).

### Decoupling Current Components and Utilizing $d\phi/dt$

The two components of electron current  $dq/dt$  can be decoupled, by blocking the  $\bullet dm/dt$  component while allowing the  $d\phi/dt$  displacement current to continue to flow. In our first paper, we pointed out one way: utilizing a special degenerate semiconductor material whose electron gas relaxation time is extended, providing a finite time during which the material serves as a *charge (i.e., a charged particle) blocking device*, while passing the flow of potential (the  $d\phi/dt$  massless displacement current component) and restraining the mass displacement current component  $\bullet dm/dt$ . With the advent of Fogal's semiconductor, the process becomes much easier to obtain and utilize in practical machines and circuits.

In our second paper, we pointed out a second way: utilize an ordinary capacitor and ramp-up step-charging. We found, however, that in most ordinary capacitors, the capacitive aspect is defeated by the sloppy movement of the plates and dielectric, converting  $d\phi/dt$  into  $dq/dt$ . Only a few very carefully selected capacitors are sufficiently rigid and can provide overunity. One must use *rigidized* calibration standard capacitors for the ramp-charging by series steps method to be successful. With ordinary capacitors, however, one can readily demonstrate that the efficiency can approach 1.0 rather than 0.50 as expected.

### Overunity Secrets: Charge Blocking, Collection, Shuttling, and Two Isolated Circuits

The charge (actually *charged mass*) blocking approach provides a massless, free flow of vacuum EM energy that can be directed to a collector (capacitive or inductive) where it can be stored in either an E-field or a B-field. This stored energy can then be transferred to an isolated load circuit whose electrons (and hence their  $\bullet dm/dt$  mass displacement current) are free to flow as  $dq/dt$ . In the isolated load circuit, then, the two components  $[(d\phi/dt)\bullet(dm/dt)]$  again couple to form  $i = dq/dt = [(d\phi/dt)\bullet(dm/dt)]$ , powering the load. All work in an electrical circuit is due to the mass displacement current  $\bullet dm/dt$  component; the massless displacement current ( $d\phi/dt$ ) is a flow of pure energy transport without loss, as is well-known. (For example, see Reference 4.)

Therefore, the first major free energy secret is simply to block the "working" component  $\bullet dm/dt$  of the current  $dq/dt$  while allowing the excess "lossless energy flow" component  $d\phi/dt$  to flow to collectors to produce either free E-field or free B-field thereupon.

The second major secret is to transfer the collected excess free energy (via energy shuttling) to a second, isolated, load circuit, where the energy is discharged through the load in the conventional fashion (i.e., such that the two current components are coupled, and electron current  $i = dq/dt$  occurs through the load). The second circuit must be isolated from the original collection circuit, so that none of the load electron current  $dq/dt$  passes back through the original source, against its back EMF.

Should the grounds be the same between the load circuit and the collection circuit so that load electron current is returned through the back EMF of the primary source, then exactly as much excess work will be done inside the source to dissipate its separation of charges as was done in the external load to furnish useful work and in the external losses. In that case, overunity is destroyed, because one is using one-half the excess free energy to destroy the source faster, while the remaining half is distributed among all external loads and losses. Since there are always some external losses besides the load, then the ratio of load power to source dissipation power is always less than unity in a conventional closed-loop circuit containing both load and source. Hence the necessity for utilizing two isolated circuits: one where energy is collected freely from the source, and one where energy is dissipated as work in the load without dissipative work in the source, and energy shuttling between them.

### A Simple Open-Loop Overunity Device

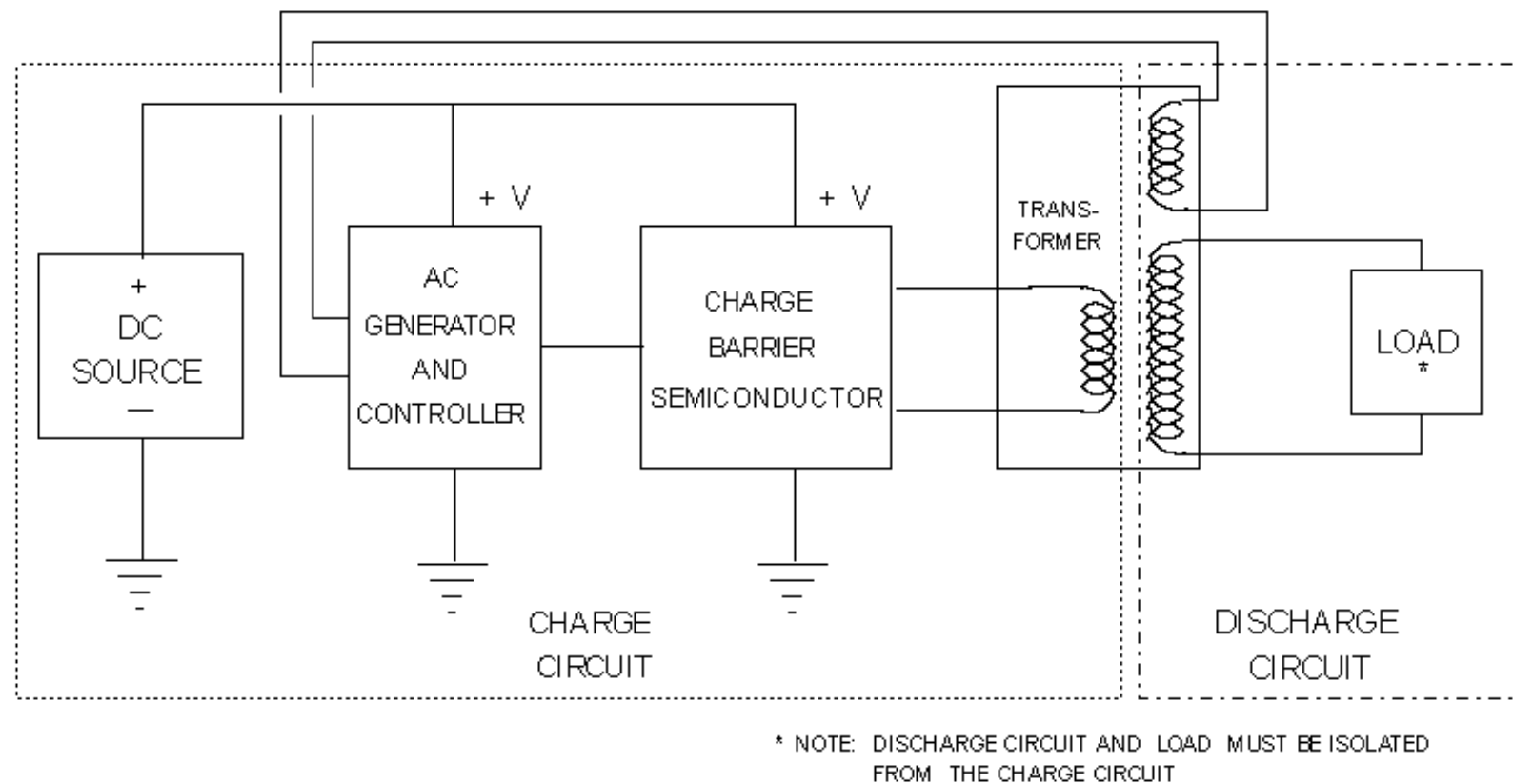


Figure 1. Use of Charge Barrier Device to Achieve Overunity in a Shuttle Circuit.

Figure 1 shows a very simple but very powerfully amplified overunity device, using an AC charge blocking semiconductor (CBS) (such as a Fogal semiconductor). The gist of the circuit is that an AC source furnishes AC current  $dq/dt$  to the CBS, which uses some of the power to power itself, but then blocks the  $dm/dt$  portion of the  $dq/dt$  input current, passing only the massless displacement current component ( $d\phi/dt$ ) into its output circuit. The ( $d\phi/dt$ ) output of the CBS is fed through the primary winding of a transformer, in this case a step-up transformer. The "current gain" of the CBS will depend upon (1) the load connected to it, and (2) the ability of the CBS to continue to block the increasing E-field on its trapped charges, as more free energy flow ( $d\phi/dt$ ) is drawn through it by the load. Thus the load and the CBS must be matched within the operational ability of the CBS, so that the CBS does not fail catastrophically.

In the primary winding of the transformer, the ( $d\phi/dt$ ) displacement current produces a magnetic field  $H$ , storing the excess flowing

energy in that field. This is a normal magnetic field; all magnetic fields are produced by the  $(d\Phi/dt)$  component of the current anyway. This magnetic field, as it changes, couples to the secondary winding, producing a normal magnetic field  $H$  therein by normal means. In the secondary circuit, electrons are not restrained by a CBS. Hence the  $(d\Phi/dt)$  induced in the circuit on the secondary side couples to the unrestrained electrons, producing normal electron current  $dq/dt$ , and driving it through the load to power it. Note that energy is conserved across the primary and the secondary; however, dissipative power and work (energy loss rate and energy loss) are not conserved, because a free flow of lossless excess energy in the form of displacement current is flowing from the vacuum through the source antenna, thence to the CBS, through it to the primary of the transformer and into the primary magnetic field, through it to the secondary magnetic field, through it into the  $(d\Phi/dt)$  induced in the secondary circuit and coupled to the electrons, through the resulting  $dq/dt$  into the load, where the scattering of photons as heat dissipates the free flowing energy in the displacement current  $d\Phi/dt$  component flowing through the load as a component of  $dq/dt = (d\Phi/dt) \bullet (dm/dt) = (d\Phi/dt) \bullet (dm/dt)$ .

### Free "Power" Amplification

If one places an ammeter in the output from the CBS, between it and the primary winding of the step-up transformer, one will read the  $(d\Phi/dt)$  as *normal  $dq/dt$  in the ammeter itself*. If one calculates the "free power" (i.e., the rate of energy dissipation) that is going into the transformer primary using this as the "current," one will show that energy and "power" are conserved between primary and secondary of the transformer. However, the actual dissipative power going into the primary side is zero or, in real circuits, vanishingly small. Consequently, the device has a very high variable power gain that depends upon the rate of energy draw and dissipation of the load on the secondary side. If one adds more load, one draws more  $dq/dt$  current on the secondary side, hence more excess  $d\Phi/dt$  displacement current on the primary side. The overall "power amplification" is limited by the ability of the transformer to handle the power in the secondary and the ability of the CBS to withstand the pressure of the internal charge barrier. This device can be easily "close-looped."

### The Negative Resistor: A Close-Looped "CBS and Shuttle" System

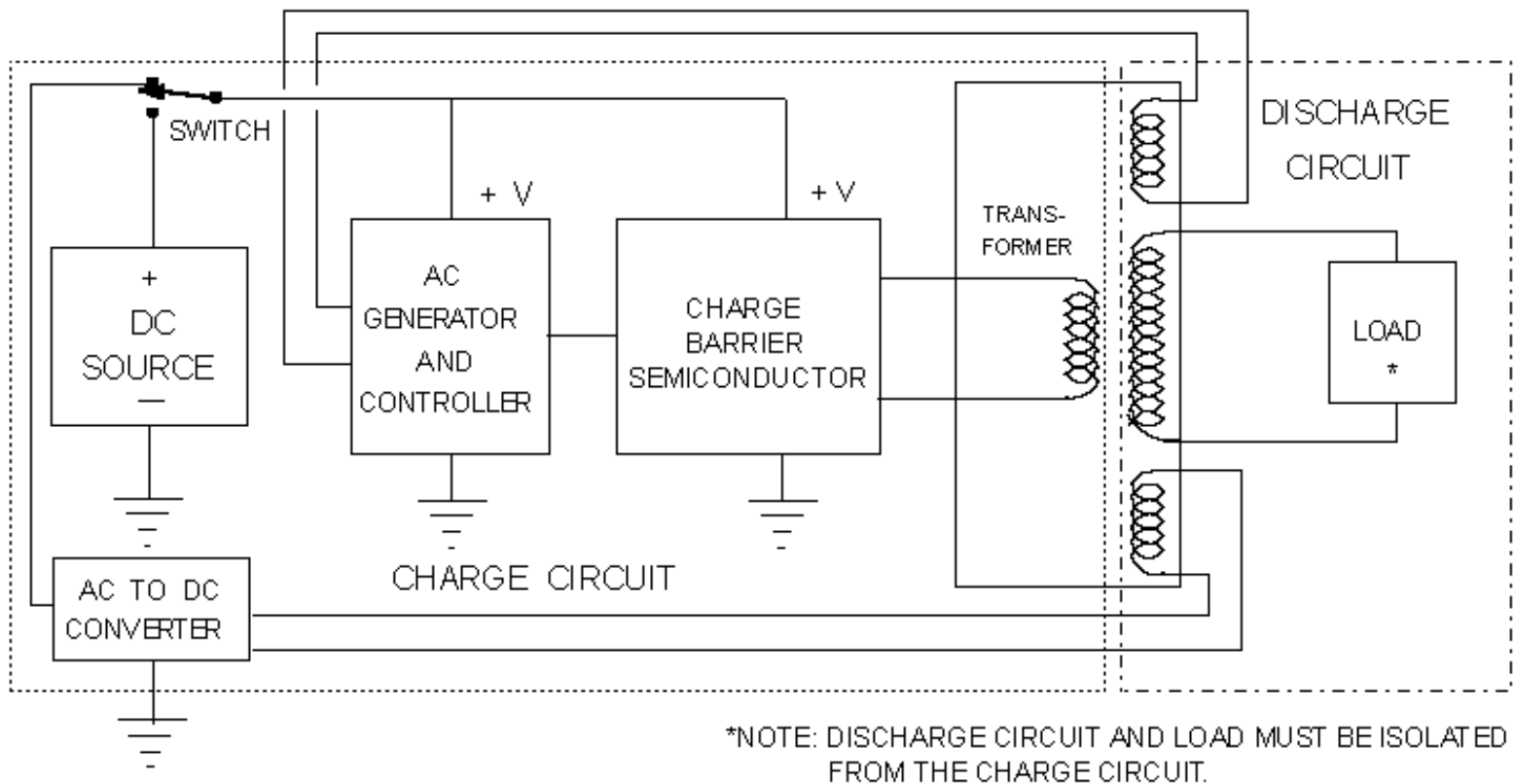


Figure 2. Use of Charge Barrier Device in a Shuttle Circuit With Controlled Feedback, to Achieve a True Negative Resistor.

Figure 2 shows the close-looping of the device shown in Figure 1, in such manner that, once stable operation is underway and the load and input stabilized, the ordinary power supply for the CBS can be switched out of the circuit. In this case, the circuit operates as a self-powered overunity device; i.e., as a *negative resistor*.

A normal resistor receives an ordered energy flow from its external circuit and scatters this energy as work out to the vacuum. I.e., it receives  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$  (scatters the excess  $(\nabla\Phi)/dt \bullet$  component (i.e., of the  $dq/dt$  passing into it from the high potential side) by radiating it away to the surrounding vacuum as scattered photons (heat)), and outputs inert (no excess  $(\nabla\Phi) \bullet$  component) electron current  $dq/dt$  into the ground side.

A negative resistor does exactly the opposite: it accepts inert incoming electrons from its "ground" side, also accepts incoming (converging)  $d\Phi/dt \bullet$  energy from the vacuum as virtual photons being absorbed upon these inert electrons so that a  $\nabla\Phi \bullet$  is added to the electron current, creating an excited, excess energy-carrying  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$ , and passes this excited current out of its high side and out into the external circuit to power the circuit. In other words, the negative resistor becomes a *self-contained free power source*, once brought up to stable operation.

In Figure 1, all that needs to be done is simply to extract some of the secondary power and feed it back to create the power input consumed by the CBS and the other normal components of the primary circuit side of the transformer.

Multitaps can be added to the secondary side, to provide varying voltage power supplies for loads requiring different voltages.

Energy is conserved in the device, because it always functions as an open circuit, receiving excess energy from an external source (the surrounding vacuum, in its virtual photon exchange with the charges in the system). It is far from thermodynamic equilibrium, and classical thermodynamics (including the second law) does not apply.

It is simply a continuous free power supply: it is a *negative resistor*.

Far more complicated units can be designed and produced. The basic point is that this type of overunity power supply is continuous and self-powered, driven by the violent exchange of energy from the vacuum, and simply collecting and gating some of that energy to the load to power the load.

## Conclusion

With this third paper, we complete the triad of papers we set out to write a little over a year ago. With the availability of charge barrier devices such as the Fogal semiconductor, together with the collection, shuttling, and use of free  $d\Phi/dt \bullet$  flowing energy, the *Age of Free, Clean, Electrical Energy* has finally dawned.

Let us use it wisely, and for the betterment of humankind, not for its destruction.

[Support of portions of this research by A.D.A.S. is gratefully acknowledged.]

## References and Notes

1. Bearden, T.E., Feb. 9, 1993, "The Final Secret of Free Energy," ADAS, distributed over Internet. The paper was also published in *Magnets*, 7(5), May 1993, p.4-26, in *Explore!*, 4(3/4), 1993, p.112-126, and in several other media. See also Bearden, T.E., "Additional Information on the Final Secret of Free Energy," Feb. 15, 1994, distributed on Internet.
2. For proof that an ordinary capacitor can be charged almost without entropy, see Fundaun, I., C. Reese, and H.H. Soonpaa, "Charging a Capacitor," *American Journal of Physics*, 60(11), Nov. 1992, p.1047-1048. See also Calkin, M.G. and D. Kiang, "Entropy change and reversibility," *American Journal of Physics*, 51(1), Jan. 1983, p.78-79. See also Heinrich, F., "Entropy change when charging a capacitor: A demonstration experiment," *American Journal of Physics*, 54(8), Aug. 1986, p.742-744. See also Gupta, V.K., Gauri Shanker, and N.K. Sharma, "Reversibility and step processes: An experiment for the undergraduate laboratory," *American Journal of Physics*, 52(10), Oct. 1984, p.945-947.
3. In most texts, the treatment of displacement current is far from adequate. A better treatment than most is given by Krauss, John D., *Electromagnetics*, Fourth Edition, McGraw-Hill, New York, p.437-439, 547-549. This treatment must still be augmented by treatment from other texts, and the ensemble "synthesized." Even then, it will never be completely clear until the separation of mass from the massless charge, and separate accounting of the two, is accomplished in the manner pointed out by the present paper.



4. For a typical confirmation that massless displacement current is already known to be lossless transport of energy without entropy, i.e., without work, see Buchwald, Jed Z., From Maxwell to Microphysics, University of Chicago Press, Chicago and London, 1985, p.44. Quoting: "...no energy transformation into heat occurs for displacement currents." It should be obvious from this fact alone that the proper way to accomplish overunity in electrical devices is to utilize the massless displacement current to flow and store excess energy, then use a "heat pump" type cycle to transfer the collected energy to a separate load circuit and discharge it separately in the load.
5. For a very recent proof that the potential is a flow process, and in fact consists of bidirectional EM waves, see Hsue, C.W., "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," IEEE Microwave and Guided Wave Letters, 1993, Vol. 3, p.82-84.
6. For proof that the vacuum EM zero-point energy is continually produced by a cosmological feedback from every charged particle in the universe, see Puthoff, H.E. , "Source of Vacuum Electromagnetic Zero-point Energy," Physical Review A, 40 (9), Nov. 1, 1989, p.4857-4862.
7. For proof that in theory the vacuum energy can be tapped, see Cole, daniel C. and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," Physical Review E, Vol. 48, No. 2, Aug. 1993, p.1562-1565.
8. For proof that a higher topology examination of EM phenomena allows energy collection as potentials and energy shuttling in circuits, see Barrett, T.W., Annales de la Fondation Louis de Broglie, Vol.16, No. 1, 1991, p.23-41. Barrett shows that EM expressed in quaternions allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. He in fact shows that Tesla's patented circuits did exactly this.
9. Stoney, G.J. (1897) "XLVII. On a Supposed Proof of a Theorem in Wave Motion, To the Editors of the Philosophical Magazine," Philosophical Magazine, 5(43), 1897, p.368-373. Stoney first pointed out the bidirectional EM wave decomposition of the scalar potential.
10. Whittaker, E.T., "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, 1903, p.333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol.1, 1904, p.367-372.

# BEARDEN

## THE FINAL SECRET OF FREE ENERGY



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# THE FINAL SECRET OF FREE ENERGY

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February 9, 1993  
(slightly revised March 23, 1993)

## Foreword

This paper contains the real secret of tapping the vacuum energy very simply, using almost any source of potential (battery, electrostatic generator a la Swiss electrostatic device (the Testatika), elevated wire wire/250 V/m in the earth/ionosphere potential, etc). The objective is for the moderately technical reader to understand how to build and understand not only a single device, but also hundreds of different kinds of them. While it is quite simple, the "magic principle" contained in this paper only took me some 30 years to discover.

The precise definitions necessary to understand the free energy rationale are included. Also included are some very simple pseudo equations for the process. Do not underestimate these simple pseudo equations -- they tell the tale that's needed.

Also, there has been little or no time to "dress up" the paper. It's simply written down very informally, to get the necessary points across.

Nearly everything *fundamental* that we've been taught about EM energy is wrong or incomplete. Even the *definition of energy* in physics is wrong! Let me summarize a few of the things that are wrong with the classical electromagnetics (CEM) model as follows:

CEM is still utilizing a model based on a material ether. Although the Michelson-Morley experiment destroyed the material ether assumption in 1887, the classical EM model has never been corrected. It also contains no definition of charge, and no definition of potential. In many cases, algorithms to calculate a magnitude are boldly and erroneously advanced as "definitions." CEM still prescribes the force fields as the causes of all EM phenomena; it has been known since 1959 that forces are effects and not causes, that EM force fields exist only in and on the charged particles of mass in the physical system, and that the potentials are the primary causes of EM phenomena. The lack of definitive definitions of mass and force in mechanics is carried over into EM theory; there is no adequate definition of EM force or of EM mass. The magnitude of the electrical charge on an electron is not quantized. Instead, it is discretized, being a function of the magnitude of the virtual photon flux (VPF) exchange between the vacuum and the charged particle. When the charged particle is placed in a potential that differs from ambient, then the magnitude of the VPF -- and hence the magnitude of the electric charge on the electron -- is altered. The CEM assumption of an "empty vacuum" is totally falsified by modern quantum mechanics. The CEM notion that EM force fields and force field waves exist in vacuum is totally false. Only potentials and potential gradients exist in the vacuum. EM waves in vacuum are not force field waves as CEM prescribes; instead, they are oscillations of potentials and potential gradients. Potentials have a bidirectional EM wave-pair structure, where the bidirectional wave pairs are phaselocked in a harmonic series. In each wave pair, photons and antiphotons are continually coupling (into spin-2 gravitons) and decoupling. This is where gravitation and electromagnetics are unified. The CEM notion that singular EM forces exist in either matter or the vacuum is false; Newton's third law requires that

all forces exist in opposite pairs. Not a single one of the equations universally taught as "Maxwell's equations" ever appeared in any book or paper by James Clerk Maxwell; instead, they are Oliver Heaviside's equations. Maxwell's actual theory was written in quaternions, which is a complete system of mathematics. The Heaviside/Gibbs vector version

(1) has a lower topology,

(2) is not a complete system of mathematics, and

(3) actually captured only a subset of Maxwell's actual theory.

Tensor theory does not recapture that which was lost.

There are even more errors in CEM, but these should suffice to make the point: *Classical electromagnetics theory is seriously flawed, with archaic foundations, riddled with errors, and it should be completely redone.* Until this revamping of CEM is accomplished, the present model solidly blocks free energy, antigravity, a unified physical field theory, and a unified theory of mind and matter interaction.

A second paper this year will detail the exact long-term causative mechanism for cancer and leukemia, and the exact mechanism for essentially 100% cure of terminal tumors in laboratory animals, demonstrated by the Priore team in France in the late 1960s and early 1970s. The same mechanism can be used to cure AIDS.

Throughout the world, humankind is suffering. In the poor populations of the world, early death is the norm, as is frequent famine. One third of the human race goes to bed hungry each night. Protein starvation of children is common. One third of the human race is infected with worms. Many other diseases ravage the far-flung poor peoples of the world. They have little or no industries. They have no abundant electrical power. They have little education, and little modern knowledge. They have little or no medical treatment. In short, they are born without hope; live in misery, filth, disease, and poverty, and die without dignity.

Meanwhile, the factories, cities, and enclaves of the "developed and developing" worlds belch forth fumes, toxic and hazardous wastes, and pollutants. They also spew forth weaponry which for one reason or another is used to arm the poorer nations, for use in destroying themselves and their impoverished neighbors. Warfare, terror, banditry, despotism, and all the four horsemen of the Apocalypse are truly loosed in the earth.

We simply must do better than that. And we *can* do better than that! But to do better, we've got to make the basics available to impoverished nations, cheaply and easily. Primary among their needs are energy and medical treatment. Given those, populations can be stabilized, people educated, development begun, and the living standard drastically elevated.

So that is the immediate goal. In this paper, I am freely giving away what required me an arduous 30 years of my life to discover. Shortly we will also detail the new methodology for a new therapeutic science, hopefully to cure the diseases that ravage humanity.

God willing, this paper will trigger a thousand, or even ten thousand, scientists and engineers to develop overunity energy devices. If so, shortly we can rid our biosphere of noxious automobile and factory exhausts, radioactive nuclear wastes, and massive oil spills. We can remove many of the hydrocarbon combustion pollutants from the air, stop acid rain and the destruction of our forests, and stop the steady rise of carbon monoxide in our air. If that truly tends toward a "Greenhouse" effect, then we can halt that effect as well.

The Creator has always given us bountiful free electrical energy, everywhere, easily and readily for the simple taking. It has only been our own blindness and folly that have prevented us from seeing and using this free energy bounty.

So here is the final secret of abundant, free electrical energy. Please use the knowledge well and see that its benefits also accrue to those impoverished ones who need it so desperately. Remember the adage, "Inasmuch as you have done it to these little ones..."

*This is for those little ones. You are our brothers and sisters. We want you to live. And we want you to have a better quality of life, not just bare existence. We care.*

Tom Bearden

February 9, 1993

## THE FINAL SECRET OF FREE ENERGY

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### Some Definitions

**The Quantum Mechanical Vacuum:** First we need some definitions. We start by assuming the *quantum mechanical vacuum*.<sup>1</sup> Empty "spacetime" is filled with an incredibly intense flux of virtual particles. It is a plenum, not an emptiness. We shall be interested only in the fantastic flux of *virtual photons*, for we are discussing electromagnetics.

**Energy and Potential:** *Energy* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. *EM energy* is any ordering, either static or dynamic, in the virtual photon flux (VPF) of vacuum. That is, for a particular kind of "field" energy, we simply choose the so-called quantum particle of that field, and consider only that kind of virtual particle flux.

*Potential* is any ordering, either static or dynamic, in the virtual particle flux of vacuum. Hey! That's exactly the same definition as energy. Quite correct. Energy and potential are identically the same. Neither is presently defined correctly in physics.

Energy is normally defined as "Energy is the capacity to do work." That's totally false. Energy has the capacity to do work, because work is correctly defined as the dissipation (disordering; scattering) of energy (order). The scattering of energy is work. It is not energy! I.e., *energy is not definable as its own scattering!*

Look at it this way: A man *has* the capacity to catch fish. That is true, but it is not a definition, since a definition must in some sense be an *identity*. You cannot say that a man *is* the capacity to catch fish! That may be a submitted definition, all right, but it is false. Similarly, energy *has* the capacity to do work; that is one of its attributes. But energy *IS* the ordering in the VPF (we are referring from now on primarily only to EM).

**Scalar and Vector Potentials:** The *scalar potential* is any static (with respect to the external observer) ordering in the VPF of vacuum. The *vector potential* is any dynamic (with respect to the external observer) ordering in the VPF of vacuum. We shall be interested in the electrostatic scalar potential. So it is a static ordering -- a stationary *template* -- in the VPF of vacuum, much as a whirlpool is a stationary ordering (template, form) in the rushing flow of a river.

### The Scalar Potential Has An Internal Structure

**The Structure of the Scalar Potential:** According to rigorous proofs by Whittaker<sup>2</sup> and Ziolkowski,<sup>3</sup> any scalar potential can be mathematically decomposed into a *harmonic series of bidirectional wave pairs*. Figure 1 shows this Whittaker/Ziolkowski (WZ) structure. In each pair, the forward-time wave is going in one direction, and its phase conjugate (time-reversed) replica wave is going in the other. According to the so-called *distortion correction theorem*<sup>4</sup> of nonlinear phase conjugate optics, this PCR wave must precisely superpose spatially with its partner wave in the pair. The two waves are *in-phase spatially*, but 180 degrees *out of phase in time*. The wave is made of *photons*, and the antiwave (PCR wave) is made of *antiphotons*. It follows that, as wave and antiwave pass through each other, the photons and antiphotons are coupling and uncoupling with each other, because the antiphoton is a PCR photon, and PCR's precisely superpose spatially with their partner. A photon or antiphoton has wave characteristics, because it has a frequency; if the wave aspects are perfectly ordered and perfectly correlated, then so are the photon's particle aspects.

**A Potential Is An Ordering Across the Universe:** So we have -- astoundingly -- perfect VPF inner ordering infolded in the electrostatic scalar potential! We also have perfect wave/antiwave ordering infolded in there. When you collect a simple set of charges on a small ball or in a region, the scalar EM potential from that set of charges reaches across the universe. In it you have an infinite harmonic series of phase-locked time-forward EM waves going out from the charges to all distant points of the entire universe. And you have an infinite harmonic series of phase-locked time-reversed EM waves coming from all points of the universe, back to the "collected charges" source.

**A Potential Is A River of Energy:** The point is, you have established a *mighty, hidden, 2-way river of energy* between that collection of charges and every other point in the universe. There is infinite energy in each of those infolded waves and antiwaves. But in a localized region, the *energy density* in each wave is finite. Since in finite circuits the potential interacts with a localized set of mass, we shall be concerned with the *local energy density* (joules/coulomb) *of the potential*.

But forget the conventional myth of visualizing the potential as pushing a unit charge in from infinity "against the force field" -- there *isn't* any force field in the vacuum, as is well-known in quantum mechanics. Also, Newton's third law requires all forces to occur in pairs -- each pair consisting of a force and its 3rd law reaction force. From that viewpoint alone, there is no such thing as an EM forcefield or force field wave in the vacuum. There are just *gradients of the vacuum potential* present in the vacuum. In the vacuum, an EM wave is actually a wave of the phase locked gradients of the electrostatic scalar potential and of the magnetostatic scalar potential. And each such gradient wave is simultaneously accompanied by its phase conjugate gradient wave, because of Newton's third law.

*Newton's third law requires forces to occur in pairs of equal but antiparallel forces.*

Both wave and antiwave co-exist simultaneously in the vacuum EM wave.<sup>5</sup> Therefore it's a stress potential wave, not a force field wave. It's more like an electromagnetic sound wave,<sup>6</sup> and so it is a longitudinal wave, not a transverse wave. In the EM vacuum wave's interaction with matter (the so-called "photon" interaction), the wave normally half interacts with the electron shells of the atom, giving translation forces, while the anti-wave half interacts with the atomic nucleus, giving the Newtonian 3rd law reaction (recoil) forces (waves). The EM wave in vacuum is an *electrogravitational wave*.

**Energy Is Internally Infinite and Unlimited:** A static potential -- which is identically excess *energy* -- is internally dynamic and infinite. Energy is internally infinite and unlimited! But it has a finite *energy density* in a local region of spacetime. Since energy interacts with matter locally, we shall be concerned with the *local energy density* (joules per coulomb).

**A Principle of Great Importance:** The only way you can have a "chunk" or finite amount of energy to dissipate in a circuit as work is to first have a potential's local energy density interact with a local finite mass collector. The normal interacting mass collector is the free electrons (the free electron gas) in the circuit. You can have, e.g., (joules/coulomb x coulomb); (joules/gram x grams); (joules/m<sup>3</sup> x m<sup>3</sup>); etc.

**Voltage, Force, Potential Gradients, Loads, and Work:** Now let's look at circuitry aspects. Conventionally they are a mess. *Voltage* is "essentially" defined as the "drop in potential." In other words, it's the dissipation (disordering) of a "finite amount" of potential gradient. But the only way you can get a "finite amount" of infinite energy/potential gradient is by first interacting the potential gradient's internal, finite, excess energy density with a finite "collector" mass. E.g., (joules/coulomb available for collection) x (coulombs collecting) = excess joules collected on the interacting coulombs, available for dissipation.

So *voltage* is really the dissipation of a finite collection of excess EM energy/potential gradient. The *dissipation* of potential or of its gradient is not potential! You cannot logically define either potential or energy as its own dissipation!

We presently use the notion of "voltage" in two completely contradictory ways in electrical physics. Here's how we got the confusion: We take a potential gradient (which has a local energy density), and we "collect" it across some charged masses in a locality -- usually the free electrons in the free electron gas in our circuitry. That is, we express the finite energy density of the potential gradient (before collection onto charges) in the local region in terms of *energy per coulomb*. The potential gradient actually is a change to the ambient potential, and so it contains an *excess* energy density (the magnitude may be either positive or negative). We then collect this potential (actually this potential density) on a certain number of coulombs, which places tiny little gradients of potential across (coupled to) each free electron. The local excess energy density of the potential gradient multiplied by the amount of collecting mass gives the amount of excess energy collected (on the interacting charges/coulombs). On each collecting particle, that little gradient, together with the coupling particle, constitutes a tiny force.  $F$  is not just *equal to*  $ma$  (non relativistic case); instead,  $F \equiv (ma)$ , where (mass x acceleration) is considered as a unitary, inseparable thing. So that little *potentialized electron* (that little *EM force*) moves itself around the circuit. In the load (scatterer), the little potentialized electron (the little force) is subjected to jerks and accelerations, thus radiating energy (shucking its gradient). Since this is done in all directions in the scatterer (load), that gets rid of the gradient, reducing the "little force" (potentialized electron) to zero because the little potential gradient is lost due to radiation.

### **Collecting And Dissipating Energy**

**Energy Dissipation and Collection:** Without further ado, we consider the scalar potential's local energy density in terms of *joules per coulomb*. That is, in a specific glob of charges (i.e., in finite circuits), the amount of energy collected from a potential gradient onto the finite number of charges receiving/collecting it, is equal to the number of joules of energy per coulomb that is in the potential gradient, times the number of coulombs collecting (receiving) the potential gradient. The current is the activated (potentialized) coulombs per second that dissipate their potential gradients during that second. The current multiplied by the *time the current flows* gives the activated coulombs that dissipated their activation (potentialization) during that flow time. *Dissipating, activated coulombs* multiplied by the *excess energy collected per activated coulomb* gives the energy dissipated (the work or scattering done) in the load.

We define *collection* as the connection of a potential gradient (a source) to the charged masses in a circuit element (the element is called the *collector*), which for a finite delay time does not allow its potentialized free electrons to move as current. In the collector, during this delay time these trapped electrons are "activated" by potential gradients being coupled to them.



Technically, that delay time in the collector is known as relaxation time,<sup>7</sup> in the case of the free electron gas<sup>8</sup> (in a wire or in a circuit element). A collector then is a circuit element that has a usable, finite relaxation time. During that relaxation time, the trapped electrons are potentialized without movement as current; each collecting/receiving free electron gets a little gradient across it, but no current yet flows. In other words, during this finite relaxation time (collection time), we extract potential from the source, but no current. Thus we extract energy (potential), but no power (which is voltage x amperage). During the relaxation time, we extract from the source only a flow of VPF, which is continually replaced in the source by the vacuum's violent VPF exchange with the source's bipolarity charges. We do not extract power from the battery/source during relaxation time, but we extract free energy density. That free energy density, coupling with a finite quantity of electrons, gives us a collected finite amount of energy. With that background, let's start again, and go through this in a useful "free energy" manner.

**The Electron Gas.** We refer to the conventional model of the free electron gas in a wire.<sup>9</sup> Although the electrons in this gas actually move by quantum mechanical laws and not by classical laws, we shall simply be dealing with the "on the average" case. So we will speak of the electrons and their movement in a classical sense, rather than a quantum mechanical sense, as this will suffice very well for our purposes.

When one connects a circuit to a source of potential gradient (say, to a battery), the first thing that happens nearly instantly is that the potential gradient races onto the coupling wire and heads down it at almost the speed of light. As it goes onto the wire, this gradient "couples" to the free electrons in the free electron gas. However, inside the wire, these electrons can hardly move down the wire at all; they can only "slip" once in a while, yielding a "drift" velocity of a fraction of a cm/sec.<sup>10</sup> On the surface, things are just a little bit different. Most of the "current" in a wire, as is well-known, moves along the surface, giving us the "skin" effect. [For that reason, many cables are stranded of finer wires, to provide more skin surface per cm<sup>3</sup> of copper, and hence more current-carrying capability per cm<sup>3</sup> of copper.]

So, initially, little gradients of potential appear on and across each free electron, with a single little  $\nabla\phi$  on each electron, and coupled to it. The couplet of  $[\nabla\phi \bullet m_e]$ , where  $m_e$  is the mass of the electron, constitutes a small  $\Delta E_e$ . [This is rigorous; the conventional EM notion that an E field exists in the vacuum is absurd, and it is well-known in QM that no observable force field exists in the vacuum. As Feynman pointed out, only the potential for the force field exists in the vacuum,<sup>11</sup> not the force field as such. Or as Lindsay and Margenau pointed out in their Foundations of Physics, one does not have an observable

force except when observable mass is present.<sup>12</sup>] We have stated it even stronger: Not only is  $F = ma$ , but  $F \equiv ma$  (nonrelativistic case).<sup>13</sup> Since no observable mass exists in vacuum, then no observable F exists there either.

### **Force, Coupled Gradients, and Electron Translation**

**Electrons Coupled to a Potential Gradient Move Themselves.** The point is, when activated by a "coupled potential gradient," the activated electron *moves itself* until it loses its activation (its coupled potential gradient).

Let me say that again, in a little more detail. Forget the standard notion that a force field such as the E-field causes electrons to move. Also forget the notion that the E-field is given by  $E = -\nabla\phi$ . In foundations of physics, those equations are known to be incorrect for the vacuum. EM force fields are known (in QM foundations theory) to be *effects*, existing only in and on the charged particles, and not existing separately at all,<sup>14</sup> or in the vacuum at all.<sup>15</sup> Instead of  $E = -\nabla\phi$ , in the vacuum the correct equation would be something like this:  $P_E = -\nabla\phi$ . In this case, we have correctly stated that the potential gradient  $P_E$  provides the potential for producing an antiparallel E-field in and on a coupling/collecting charged mass, and the magnitude and direction of that

potential gradient will be given by  $-\nabla\phi$ , if and only if a charged mass particle is first introduced so that it couples to  $P_E$ .

At any rate, the activated/potentialized electron moves itself. The reason is that it constitutes a force. Force  $\equiv$  (mass x acceleration) (non relativistic case). So the potentialized/activated electron is continuously accelerating. However, it is prevented from easily moving down the wire directly. To begin to do that, it essentially has to first move to the outer skin of the copper conductor.

**The Collector:** We now consider a circuit element that we called a *collector*. (It could be a special coil made of special material, a capacitor with doped plates rather than simple conducting plates, or any one of a number of things). The objective is for the *collector* to be made of special material so that it has a free electron gas whose electrons are momentarily not free to move as current (they continue to move violently around microscopically, but essentially with zero *net* macroscopic translation) for a finite delay (relaxation) time, while they are settling themselves upon the surface and preparing to move as current. Let's call the electrons NNTE (no net translation electrons) during that finite delay (relaxation time). During that "no-current" delay time, the NNTE electrons become potentialized/activated by the potential gradient impressed across the collector. So at the end of the NNT time, the NNTE electrons are potentialized, and each is of the form  $[\nabla\phi \bullet m_e]$ .

### **The Secret of Free Energy**

**Two Circuits/Two Cycles:** We are going to use two circuits and two cycles, as shown in Figure 2:

(1) We shall connect a *collector* to a primary source of potential (to a battery) during the short time that current does not yet flow, but potential does. (In other words, during the relaxation time of the collector, we allow the VPF to flow onto the NNTE electrons of the collector and potentialize (activate) them, but do not yet allow the electrons themselves to flow as current, but only to move transversely in the wiring and collector.) This is **cycle one** of a 2-cycle process: This is collection of a specific amount of current-free potential gradient -- power-free energy -- off the potential-source (the battery) onto a collector. During the collection cycle/time, *current does not and must not flow* (we are discussing the ideal case). We are freely "charging up" the collector as a *secondary battery/source*.

(2) At the end of the collection (potentialization/activation) time/cycle in circuit one, the potentialized collector (the charged secondary source) is sharply switched away from its connection to the primary potential source (the battery), and at the same time it is instantly switched into a separate closed circuit with the load. This is important: In **cycle two**, the potentialized collector (with its finite amount of excess trapped EM energy) and the load are connected in a *completely separate circuit*, and one that is closed, with no connection at all to the original source of potential (in this case, to the battery). Specifically, this "load and potentialized collector" circuit is completely separate from the primary source; during cycle two the primary source (the battery) is not connected to anything.

In other words, all we've taken from the primary source (the battery) is *current-free, force-field-free potential gradient*. So to speak, we've taken a "chunk of potential gradient" from the source, nothing else. You simply multiply the potential gradient's local energy density (the so-called "voltage", which is really excess joules per coulomb) by the number of coulombs of charge that is "activated" (that "collects" this voltage or excess joules/coulomb) in the collector. Specifically, we have not taken any *power* from the battery itself, and so *we have not done any internal work inside the battery upon its internal resistance*, by a "closed circuit electron flow" back into the battery. We have not permitted such a flow.

Instead, *we are using the activated collector as a temporary, secondary battery*. We will utilize this secondary battery in a conventional manner to power the load, *which will also kill the secondary battery* (dissipate its trapped EM energy). But that will *not* affect the primary source. The primary source is never used to directly power the load. It is only used as an infinite source of potential gradient (i.e., as an infinite source of *energy density*).

### **The Standard Power Extraction Circuit**

**The Conventional Circuit:** We digress momentarily: In the standard electrical method, the potential source (which is a bipolarity) is connected across the load. This connects both the external load and the internal resistance of the battery itself in series, as the "total circuit load." Electrons then pour through the external load circuit and through the internal battery resistance, from the "electron rich" polarity of the source to its "electron poor" opposite polarity. The scattering of energy in the internal battery resistance is actually doing work to upset the chemistry that is maintaining the battery's charge separation (the bipolarity). In this manner, the source's separation of charges (which is the "gate" furnishing the potential/energy gradient) is being destroyed as the current flows, and this in turn destroys the source of the potential gradient.

In other words, normally we, engineers, are trained to *kill the bipolarity*, which kills the potential source itself! Incredible as it may be, we, engineers and scientists, have been trained to utilize the free "trapped EM energy" furnished by nature through the source, to destroy the source of the energy/potential, *with the same vigor as they power the external load!* In fact, our teachers simply have never learned any other way to do it except this deliberately "self-destructive" manner!

### **A Waterwheel Analogy**

Imagine, if you will, a waterwheel that powers a mill, with a sluice gate upstream in a river, that diverts some river water into the sluice carrying water to the wheel when the sluice gate is opened into the river. The diverted water flows down to the waterwheel, turning it, and the spent water is fed back into the river below the mill site. Now what fool would connect a pulley onto the waterwheel, with a rope running from the pulley to the sluice gate, so that when the wheel rotated, part of the rotational power also was utilized to close the sluice gate and shut off the water, stopping the waterwheel? If one did so, when the sluice gate was opened, the waterwheel would rotate only until the sluice gate was closed, shutting off the water. Then one would laboriously have to pay to reopen the sluice gate again, then again, then again. No self-respecting "waterwheel engineer" would do such an unthinkable, insane thing. But that's exactly what we engineers, electrical physicists, and scientists have been trained to do! We have no *energy* engineers or *energy* scientists at all; instead, we have all been *power* engineers and *power* scientists. We have all been *energy source killers!* In this paper, we shall try to do better, and rectify "one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history," as Tesla called the conventional electromagnetics.<sup>16</sup> By being *energy* engineers, we shall only have to pay for our energy source *once*, and then we shall draw as much energy from it as we wish.

### **External Load Power Is Free; Only The Power In The Source Costs**

Here's the magic secret of free electrical power: *The power in the external load is absolutely free, and it always has been free.*<sup>17</sup> *In any load circuit, the only power you have to pay for, and have ever had to pay for, is the power you incorrectly use to kill your own primary source.* The only power that "costs" more effort/dollars is the power erroneously utilized inside the source to "close the gate" and kill the primary source. Your electric power company doesn't pay for any of the collected energy on your load circuits that is dissipated to power your house. Instead, the power company charges you for its own ignorance. It charges you for its insane use

of its own freely extracted electrical energy to continually kill the bipolarity in each of its generators, thus continually killing the free electrical source of that generator's energy.<sup>18</sup>

***In any electric circuit, we can continue to indefinitely power the external load indirectly from a source, so long as we are not so naive as to use any of the free energy we extract from the primary source to dissipate back inside the primary source itself and shut it off!***

And we can easily and freely multiply electrical potential. As an example, given a single good source of potential, a hundred radial wires can be connected to the source. The same potential will now appear at each of the ends of the hundred wires. A switcher/collector unit can then operate from each radial line's end, and power external loads, without "loading" the original primary source. This "cascading" can be continued indefinitely. A single power plant, e.g., can power the entire electrical grid of the United States. And a single automobile battery can power a large, agile, electric automobile at highway speeds, with sports car acceleration, with unlimited range, without "refueling," and with no noxious chemical exhaust.

### **Obvious Impacts**

Environmentalists should immediately see that the chemical pollution of the biosphere by mechanistic and processes to obtain energy can be dramatically reduced, to almost negligible levels. *There need be no huge oil tanker spills, for there need be no huge oil tankers.* There need be no worrisome radioactive wastes from nuclear power plants, or abandoned hazardous nuclear plants when their life is finished, because *there need be no nuclear power plants.* There need be no noxious exhausts from jet airplanes (which are really what is diminishing the ozone layer and punching holes in it), automobiles, trucks, buses, innumerable coal-fired and oil-fired power plants, etc.

### **The Electronic Smog Problem**

In fairness we point out that, as the usage of free electrical energy mushrooms, we will be dramatically increasing the low-level EM signal density of the environment, and that too is biologically detrimental. Although beyond the scope of this paper, that cumulative biological damage mechanism has also been uncovered by this author. A formal paper is presently in preparation for presentation in March 1993 at the annual meeting and conference of the Alabama Academy of Science.<sup>19</sup> The paper will also present an entirely new definition of cancer, give its exact long-term cumulative mechanism, and give an exact, scientifically proven mechanism for eliminating cancer, leukemia, and other debilitating diseases such as AIDS. For our purposes here, we simply state that we understand the EM "electronic smog" biological damage mechanism, and how to go about developing a total counter for it. Eventually, we would see a small "counter unit" added to each power unit, alleviating the "electronic smog" problem and preventing biological damage.

### **Only Dissipate Energy From a Collector, Not the Source**

**Completion of the Collection Cycle:** But to return to the completion of our collection cycle (cycle one). *During collection, we have not extracted power from the source. That is vital.* We have not moved the gate through which our source is furnishing free energy. We have not diminished our primary source. From our previous definitions of potential, we have indeed extracted *trapped energy* from the primary source, because we placed its "local energy density" across a certain finite collector/mass, instead of extracting *power* (dissipating energy inside the source or battery to spoil its chemistry and deplete its charge separation).

### **All Energy Is Free**

Here's the incredible truth. The entire universe is filled with mind boggling free energy everywhere, in the simplest of things. Simply scrape your feet on the carpet, and you will collect perhaps 2,000 "volts" on your body. At that time, hidden EM energy is flowing from every point in the universe to your body, and from your body back to every point in the universe. We know that all macroscopic matter is filled with stupendous amounts of electrical charge. So an incredible river of energy -- a great flux -- is driving every single thing, from the smallest to the largest. Opening a gate to extract trapped EM energy is simple. Just collect a bit of charge, or scrape your feet hard, or comb your hair briskly. *All we have to do is not be stupid and close the gate once we've got it opened!*

God has been most kind. We have nothing but free energy everywhere. All energy is furnished to us freely! *It's our own blindness that has made us into energy source killers.* All we have to do is open our eyes to the truth of nature's incredible energy bounty. We must just freely collect that bountiful fruit from Nature's tree, instead of chopping down the tree and killing it.

### **Dissipating The Collected Energy**

**The Work Cycle:** We focus again on cycle two. Shortly after the now-potentialized collector is connected to the load at the beginning of cycle 2 (the *power* cycle, or *energy dissipation* cycle, or *work* cycle), the potential gradient across the potentialized collector is connected (transferred) across the free electrons in the load circuit. We assume that the material of the collector and the switching time have been designed so that, shortly after switching to the loading/work cycle, the activated/potentialized free electrons in the electron gas in the collector reach the skin of the collector, and are free to move as current.

So just after the beginning of cycle two, each of the free electrons in the load circuit now is potentialized and free to move down the wiring. Each potentialized (activated) electron has its own little individual potential gradient across it and coupled to it, due to the overall potential gradient from the collector. Remember, prior to coupling to charges, this potential gradient moves through the circuit at light speed. An EM potential gradient coupled to a charged mass constitutes an *EM force field* (excess trapped EM energy per coulomb, times the number of collecting coulombs). Now each little free electron with its potential gradient forms a little E-field (force/charge), and that little E-field (force/charge) is free to move. That's all it takes to move (accelerate) the little activated electron's mass through the load (the scatterer). We strongly stress that *the potentialized/activated electron moves itself*. It doesn't care whether or not the external battery is attached or not. It is its own little motorboat, with its own little engine driving it.

As the little potentialized electrons reach the load (the scatterer), they bang and clang around in there erratically. That is, the "scatterer" (load) causes spurious accelerations ("scatterings") of these self-driven electrons. As is well-known, when a charge is accelerated, it radiates photons. What actually happens is that these little "jerked around" electrons shuck off their little potential gradients in the load (in the scatterer, or the "jerker-arounder") by emitting/radiating photons in all directions. Hence the heat that is produced in the load; the heat is just these scattered photons. The theory of calorimetry already states that all the excess energy (on the potentialized electrons) will be dissipated as this heat (scattered EM energy).

When all the potentialized electrons have radiated away their potential gradients in the load (scatterer), they are no longer potentialized. The free electron gas is again "quiescent" and no longer potentialized/activated (again, we are talking about "on the average" from a classical viewpoint).

### **Repetition and Review**

**Notice What We've Done:** We took some trapped EM energy density (a chunk of potential gradient, a "voltage" before current flows) from the source, by switching that potential gradient (energy density, which is joules per coulomb) onto a collector (containing a certain number of

coulombs of trapped charges) where the potential gradient activates/potentializes/couples-to these temporarily non translating electrons. So the finite collector collected a finite amount of excess energy [joules/coulomb x collecting (trapped) coulombs] on its now-excited (activated) free electrons. Then, before any current has yet flowed from the source, we switched that potentialized collector (with its temporarily restrained but potentialized electrons; with their finite amount of excess trapped EM energy) away from the source and directly across the load. Shortly thereafter, the relaxation time in the collector expires. The potentialized electrons in the collector are freed to move in the external load circuit, consisting of the collector and the load, and so they do so. The scattering "shock collisions" due to the erratic electron accelerations in the load shake off the little potential gradients on the conduction electrons, emitting photons in all directions, which we call "heat." In shaking off the photons, the electrons lose their little potential gradients, hence lose their activation (excess EM energy).

Rigorously, we have extracted some energy in trapped form, and allowed it to dissipate in the load, "powering the load" for a finite discharge/dissipation time and doing work.<sup>20</sup> *Contrary to the conventional electrical power engineering, we have also done this without doing any work inside the source to diminish its ability to furnish potential gradient.*

### **What Is Energy In An Electric Circuit?**

**Energy in an Electric Circuit:** Here's the principle loud and clear. Energy in an electric circuit involves only the potentialization and depotentialization of the electron carriers in that circuit.<sup>21</sup> It involves only the potential gradient (the joules per coulomb) collected by the circuit to potentialize its electrons, and the number of coulombs of electrons that are potentialized during the collection phase. Electric circuits simply utilize electrons as carriers of "potential gradients," from the source to the load, where these gradients and the activated electrons constitute excess trapped EM energy. In the "shocking/scattering" occurring in the load, the jerking (acceleration) of the electrons causes these activated (trapped-energy-carrying) electrons to shuck off their potential gradients by emitting them as scattered photons (heat).

If one is thoughtless enough to allow the primary potential source to remain in the circuit during the "work" phase, then one is using the potentialized electrons to also go back into the primary source and scatter energy from its internal resistance (internal load), *thereby disorganizing the organization that was producing the source potential and energy in the first place.* If one does that, then all the while one is getting some work (scattering of energy) in the load, one is also steadily getting some work done inside the primary source to steadily destroy it! Literally, one is killing the goose that lays the golden eggs.

**Continued Operations:** But back to our circuit. After we complete one full collection/discharge cycle, we wish to continue producing work in the external load. So we simply switch the collector back away from the load and onto the primary source, collect some more current-free potential, and again independently switch the collector with its repotentialized free electrons back across the load. We can repeat this two-cycle process to potentialize the external load and power it as long as we wish, from a battery or other source of potential, and never take any power at all from the primary battery. We do not need to drain the battery or source at all, in order to power a load, unless we attempt to power it directly. Powering the external load is always free!

Nature has been most kind, and we have been most ignorant. You can have all the *trapped electrical energy* you wish, from any source of potential, for *free*. You can power all the external loads you wish, for free, by using a collector as a secondary source, and simply shuttling potential between the primary source and the collector.<sup>22</sup> But you cannot have power for free from (in) the potential source. If you allow current flow in your collection cycle, you are depleting the separated charges inside the battery that are furnishing the source potential.

### **The Coal-Fired Locomotive**

**Rigorous Analogy of a Coal-Fired Locomotive.** Now here's an exact analogy, to assist in understanding. Imagine a coal-fired train, and a fireman shoveling coal. He has an external load/scatterer of energy (the fire in the firebox under the boiler). He has a primary source of potential/energy (the coal car). No fireman in his right mind would ignite the coal in the chute of the coal bin, to try and get some heat energy into the firebox! [That is, he would not attempt to extract *power* from the source. Yet that's exactly what all we engineers are trained to do at present.] Instead, the fireman takes out (collects) a finite amount (a shovelful) of coal (trapped energy). Coal *per se* (the potential gradient) has a certain energy density per unit volume (trapped joules per unit volume of coal) and the shovel (collector) has a certain volume. Accordingly, the shovelful of coal contains a certain amount of trapped joules of energy. In the fireman's shovel (the collector), *the energy remains in totally trapped form, as coal not afire and without its trapped energy being dissipated as work.* [He doesn't act like a fool and ignite the coal in the shovel either!] He then throws that shovel of coal (collected trapped energy) onto the fire (scatterer), completely separately from the coal bin/source. He continues to repeat his shoveling cycle, and each shovelful of coal added to the fire dissipates additional energy, powering the load.

### **The Free Energy Principle**

**All potential gradient (trapped excess energy density) is free for the taking.**<sup>23</sup> The potential is due to the violent VPF exchange between the vacuum and the separated bipolar charges furnishing the source potential gradient. The energy of the entire universe is flowing through that source potential. You can have as much of this internal VPF flux energy (potential) as you wish, as often as you wish, so long as you don't demand *current* (which is power, or the rate at which the energy is being freed and dissipated). It's really simple. You can have all the *trapped* energy you wish, from any source. You cannot connect to the source and start to dissipate the energy as power, however, without starting to close the "gate" from which your free trapped energy is coming.

In other words, here's the iron rule: ***If you draw current, you kill the bipolarity gate furnishing the potential gradient (source of energy density). In that case, you kill the source. If you do not draw current, you do not kill the bipolarity gate and you do not shut down the source. In that case, you can continue to "use" it and extract trapped EM energy from it forever.***

### **Definitions Again**

**Definitions:** I'll put down some simple equations, that may help to explain it more exactly. First we repeat some definitions.

Energy is any ordering imposed upon the virtual particle flux of vacuum. EM energy is any ordering imposed upon the virtual *photon* flux of vacuum. Static energy is an ordering (a template) which is stationary with respect to the external observer. Dynamic energy is an ordering (a template) which is not stationary with respect to the external observer.

Potential: Any ordering imposed upon the virtual particle flux of vacuum. Scalar potential is an ordering (template) that is not moving with respect to the external observer. Vector potential is an ordering (template) that is moving with respect to the external observer.

The scalar EM potential is any static (with respect to the external observer) ordering imposed upon the virtual *photon* flux of vacuum. Etc.

Note again that energy and potential have exactly the same definition. Potential is in fact trapped energy. Scalar EM potential is *static EM energy* (to the external observer) or *trapped* (collected) EM energy. In other words, if one takes off a differential of potential onto a fixed



number of coulombs, one takes off a certain magnitude of trapped EM energy. In other words, one takes out a shovelful of coal from the coal car.

### **Importance of Separation of Charges**

**We Must Not Dispel the Separation of Charges In Our Source:** The difference in our coal-fired train analogy and our electrical circuit is that, in the coal train, the coal in the coal car is not automatically and continually replenished. Also, the coal in the coal car has already been collected by the mass of the coal car, so it is not infinite. In the electrical circuit, the potential gradient in the primary source is continually replenished, automatically, and it is infinite (though it has a finite energy density). The reason is simple. EM potential (in the normal sense) is actually a virtual photon flux exchange between the vacuum (the entire vacuum, all over the universe) and a charged particle or collection of charged particles.<sup>24</sup> Thus the potential (gradient) is a powerful energy flux, pumped by the vacuum and the entire universe, that continues automatically, so long as we do not allow the collected charges in our bipolarity source to be dissipated. In terms of a battery, we achieved separation of charges inside the battery by chemical action, and *we paid for that initially*. Once separated, the charges essentially stay separated (because of the chemistry) unless we foolishly do something to dissipate them, such as upsetting the chemistry, so they are no longer separated positive from negative. So if we don't do anything to these separated charges, they continue to be driven by their fierce exchange of virtual photon flux with the vacuum/universe. If we then simply extract some of that flux exchange, without moving the charges, we are directly "gating" trapped EM energy from the vacuum/charged particle VPF exchange.<sup>25</sup>

### **The Potential Is Infinite And So Is Its Energy Content**

**You Can't Dip The Ocean Dry With a Spoon:** Let's say that another way. The charged particles in our potential source are in a constant, seething, equilibrium exchange of trapped EM energy with the entire universe. That energy exchange is so enormous that, if we gate some of it out to collect on some other "temporarily frozen" charges and potentialize/activate them, the vacuum flux doesn't even miss it. It's like dipping a spoonful of water out of the restless ocean. The hole is instantly filled, and the water replenished. We can dip with that spoon as much as we wish, and the ocean will never run dry, but will simply continue to furnish us water, spoonful by spoonful.

The same is true in our electric circuits. We can have all the potential (trapped EM energy density) we wish, for free, from a single source, so long as we do not allow work to be done inside the source to close off our "gate" and kill our primary source.

### **The Twisted Concept of Voltage**

**Before We Develop Some Pseudo-Equations:** In the equations we wish to develop, we have one problem, due to the lack of insight of conventional electrical physicists. That is, they have insisted upon "measuring" and expressing both the infinite potential (nondissipated) and a certain quantity of potential (dissipated) in volts. So they say "a potential of so many volts." That's nonsense, and totally erroneous. Rigorously, a voltage is a drop or a dissipation of so much (a finite amount of) *collected* excess potential/energy. You "measure" the voltage in a voltmeter by impressing a potential gradient upon the electron gas in the circuitry, wherein you collect or get in your voltmeter so much [(joules/coulomb) x coulombs]. A tiny current (coulombs/second) from this internal collection then flows for a finite time through the resistance of the voltmeter. So you dissipate (joules/coulomb) x (coulombs/second) x (seconds), which gives a certain amount of energy dissipated as work in moving the needle of the voltmeter. The voltmeter is calibrated so that it effectively indicates the *collected energy per coulomb* that was dissipated, and it calls that entity voltage. It involves a finite amount of energy that has already been dissipated as work, and it's a measure of the local energy density of the potential in terms of joules/coulomb. It is *not* a measure of the potential proper. It's after the fact; the extracted

So we'll leave it at that, and we'll adapt the notion of potential the way it is corrupted in electrical circuit theory. There it's used not really as energy, but rather as *excess energy per coulomb of potentialized charge*. I apologize for that difficulty, which is not of my own making, but I must use the conventional notion if we are to greatly clarify the pseudo equations.

**The Pseudo-Equations:** Let us use the following subscripts and letter convention, and develop the nomenclature needed:

But  $V_T \times \text{coul}_T = K_T$  [6]

Or

$[V_T] = [K_T] / [\text{coul}_T] = \text{trapped energy/trapped coulomb [7]}$

$[K_T] = [V_T] \times [\text{coul}_T] = \text{amount of trapped energy, each cycle [8]}$

So that's what we were getting at. The amount of trapped energy you can transfer (in other words, how much coal you get in one shovelful) depends upon the number of trapped electrons you have in the trapped free electron gas in the collector, and the potential gradient you apply to those trapped coulombs to potentialize them.

### **Relaxation Time and Semiconductors**

**Relaxation Time:** The time it takes for the free electrons in a conductor (or material) to reach the skin of the wire after potential is applied, is, of course, called the *relaxation time*. During that time, the free electrons in the gas are "trapped" insofar as producing current (dissipation of the potential) is concerned. However, immediately after the relaxation time ends, current begins and dissipation of the trapped energy begins.

In copper, the relaxation time is incredibly rapid. It's about  $1.5 \times 10^{-19}$  sec. However, in quartz it is about 10 days! So as you can see, we need to get somewhere in between these two values, and so we will have to "mix" or "dope" materials. We must get a sufficiently long relaxation time so that we can switch and collect comfortably in cycle one, then switch into cycle two for dispersion of the freely collected energy in the collector. However, the relaxation time we get must also be short enough to allow quick discharge in the load, as soon as we switch the primary source away from the collector. Actually, we need a *degenerate semiconductor material* instead of plain copper.

**Degenerate Semiconductor Material:** A *semiconductor material* is intermediate between a good conductor and an insulator. It's a nonlinear material, and doped. A *degenerate semiconductor material* is one which has all its conduction bands filled with electrons, and so it thinks it is a conductor. That is, a degenerate semiconductor is essentially a doped conductor, so to speak. As you can see, we can increase the relaxation time in our "conductors" connected to the source by making them of *degenerate semiconductor material*. What we're talking about is "doping" the copper in the wire, and in the collector, so that we can have plenty of time to collect, and switch, and discharge, and switch, and collect, etc.

Now in a doped conductor (degenerate semiconductor), we can tailor the relaxation time by tailoring the doping. We must dope the copper before we make the wire. Why would we wish to do that? We want to overcome the single problem that so far has defeated almost all the "overunity" researchers and inventors.

WHEN YOU CONNECT TO A SOURCE, YOU CAN ONLY EXTRACT CURRENT-FREE POTENTIAL -- FREE "TRAPPED EM ENERGY" -- DURING THE ELECTRON RELAXATION TIME IN THE CONNECTING CONDUCTORS AND SUCCEEDING CIRCUIT COMPONENTS. AFTER THAT, YOU'RE STEADILY EXTRACTING POWER, AND THE ENERGY EXTRACTED FROM THE SOURCE IS BEING PARTIALLY DISSIPATED IN THE RESISTANCE/LOADING OF THE CIRCUIT, AND PARTIALLY DISSIPATED IN THE INTERNAL RESISTANCE OF THE SOURCE. IN THE LATTER DISSIPATION, YOU'RE ALSO DISSIPATING YOUR SOURCE BY DOING WORK ON IT INTERNALLY TO KILL IT.

**Good Copper Wire: Bane of Overunity Inventors:** Many destitute inventors, tinkering and fiddling with overunity devices, finally get something (a circuit or device) that does yield more work out than they had to input. At that point, they usually conclude that it's simply the specific circuit configuration and its conventional functioning that produces the overunity work. However, usually as soon as this configuration is more carefully built with very good materials, boom! It

isn't overunity anymore. The inventors and their assistants then desperately bang and clang away, getting more frustrated as the years pass. The investors get mad, sue for fraud, or get in all sorts of squabbles. The scientists who tested it and found it wanting, pooh-pooh the whole thing as a scam and a fraud, or just a seriously mistaken inventor. Scratch one more "overunity" device.

Most of these inventors got their successful effect (and possibly erratically) when they were struggling with inferior, usually old, usually corroded materials. Actually, the *more* inferior, the better. The more contaminated/doped, the better!

The moment you wire up your circuit with *good copper wire* connected between the battery or primary source and any kind of load including the distributed circuitry loading itself, you can forget about overunity. You will lose it in the copper, after the first  $1.5 \times 10^{-19}$  second!

Think of a really good conductor such as copper as an essentially linear material. Linear means energy conservative. Overunity can only be done with a highly nonlinear effect. So your "conductors" have to be made of nonlinear materials. In fact, they have to be made of degenerate semiconductor material. For the type of circuitry we are talking about, the copper has to be doped and then made into "doped copper" wiring. You also have to utilize the primary battery only to potentialize a collector (secondary battery/source), and then use this secondary battery source to conventionally power the load *while also killing itself*.

**The Wiring And the Collector Must Be of Degenerate Semiconductor (DSC) Material.**<sup>26</sup> A good materials scientist/engineer, together with a decent electrodynamicist, can readily design and tailor some doped copper wiring so that the material in the wiring is a degenerate semiconductor material, with a target (desired) relaxation time. That's what you should use to make the wiring to connect up your source to the collector with, and that type of material is also what you use in your collector. You can use either a coil or a capacitor as the collector, but its "conductive" material has to be degenerate semiconductor material -- in short, it must be doped to have the proper relaxation time. From the collector to the load, however, obviously you want to use a good conductor material. Ordinary copper will do nicely there.

Once you do that, you're in business. When making the DSC material, simply tailor the relaxation time to something which is easily switched. For example, take one millisecond. With a relaxation time of that long, switching is easy. In fact, one could even use good mechanical switching. Or easily use inexpensive ordinary solid state switching, without having to go all the way to nanosecond switching.

Then, in the collector, you calculate the number of "trapped coulombs" you have. Take the "trapped voltage" (current-free potential's energy density per coulomb) you extract from the source during the electron relaxation time after the collector is connected. Multiply the number of trapped coulombs in the collector by the trapped voltage during collection, and you have the amount of energy in joules that you extract FOR FREE, without paying for it, from the source *during every collection cycle*.

### **Sources, Collectors, and Power**

**Tapping Vacuum Energy.** You're getting the excess electrical energy directly from the vacuum, as we briefly pointed out above. The vacuum will freely replenish all the "trapped voltage" you extract from the primary source during the electron relaxation time. It won't replenish a single bit of "dissipated voltage" (power) you extract from the source.

Note that the same considerations apply in the collector. It's got to have a somewhat longer electron relaxation time. Its electrons stay "unrelaxed" during the collection cycle, and allow for some additional switching time to connect to the load. The "trapped voltage" across the collector multiplied by the number of trapped coulombs in it, gives the number of joules of FREE EM

ENERGY you extract and get into and onto the collector (the shovel). In other words, that's your "shovelful of coal." You then throw the "shovelful" onto the fire/load -- you simply disconnect the collector from the primary source and connect it across the external load. The collector (secondary battery) now powers the load and its own internal resistance, "killing" itself while furnishing the energy for powering the external load as well.

**The Source Can Be Almost Anything:** You can use as a source a simple elevated wire, to "tap" potential from the 200-300 volts/meter between earth and ionosphere. Here again, you need to utilize calibrated, doped wire.

Finally, you must adjust the repetition switching in accordance with the discharge time through the load. In other words, you have a serial process as follows:

- (1) extract trapped energy (potential) from the source onto the collector,  $\Delta t_1$ .
- (2) Switch the collector off the source, onto the load, during time  $\Delta t_2$ .
- (3) Wait while the collected energy in the collector discharges through the load, during time  $\Delta t_3$ .
- (4) Switch the collector back off the load and onto the potential source, during time  $\Delta t_4$ . That completes one cycle.

The serial timing simply is  $[\Delta t_1 + \Delta t_2 + \Delta t_3 + \Delta t_4]$ .

If you balance all the doping and the materials design, and correlate the switching, you can get all the free energy you wish. Properly utilized, a single car battery can be used to power an electric automobile indefinitely. Or even to power a battleship. In the real world, of course, you will inevitably have a tiny bit of loss as you go, because there's a finite (though high) resistance between the two poles of your battery. Handling that is a piece of cake. Simply run a separate little collection circuit to collect a little bit of trapped EM energy from the slowly leaking source, and ever so often feed the collected energy back into the battery as power, to "reseparate" the charges (charge the battery) and replace the small amount of the primary source's potential gradient that has been lost. The battery, load, and "trickle charger" then become a closed-circuit free-energy source that will last for years and years.

**Limited Only By One's Imagination:** Of course you can see many variants; this is just the "master key." You can have multiple collectors, collecting trapped energy simultaneously or in sequence off a single source, and pooling their collected energy to more powerfully power the load. You can utilize a very high "voltage", such as in the Swiss electrostatic overunity device, to increase the energy collected per coulomb in each switching (in each shovelful) in accord with equation [8]. For a battery, you can set a separate little collector/load device to trickle-charge the battery, overcoming the small normal "leakage current" that does occur in batteries and in real circuits and devices. The opportunities are endless. You can put in a unit to take mostly only power-free energy from the "power line" feeding your business or home, reducing your utility bill by -- say -- 90%. Or you can simply build a small home power unit to do the whole job, for only a few hundred dollars. *This simple secret can be used to power the world, cheaply and cleanly, and to clean up the biosphere.*

## **Conclusion**

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Well, there you have it. I've given you the benefit of what required most of my adult life to discover. The definitions advanced in this paper are rigorous. It took years of sweat and tears to

come up with them. They're simple, but they will change your entire understanding of electromagnetics, power, and energy once you grasp them. Please read them, and ponder them, several times. One or two readings will not be sufficient to fully grasp what is said here.

Also, hopefully, by this time, the reader is beginning to experience the same emotions as I experienced when I finally discovered how simple it all really was. First one wants to *laugh* for about two hours at how truly ignorant we've all been. Then one wants to *cry* for about two hours for the same reason. This could all have been done a century ago, *if we had ever really understood electromagnetics*.

We've had this electromagnetics around for over 100 years -- Maxwell's book was published in 1873. We got it wrong, starting right with Maxwell and his use of the material ether, which was almost universally assumed at the time. Still, by using quaternions, Maxwell succeeded in packing a great deal more in the model than even he himself recognized. When the vector aspects interacted to form a zero resultant *translationally*, those active interactants were still in there and still fighting and interacting. The scalar component of the quaternion remained, and infolded those struggling vectors and functions of them inside itself. In short, it captured the case where the electromagnetic energies are involved in translation actions which nullify each other translationally (electromagnetically). However, the energies are still in there in the continuing interactants inside the zero vector resultant. As such, they are trapped EM energy. And it is the trapped EM energy inside a mass -- not the mass per se -- which is responsible for gravitation. In other words, *Maxwell's theory already correctly captured the unification of the gravitational field and the electromagnetic field in 1873*.

Then Heaviside et al forced Maxwell's theory into a vector framework, throwing out the scalar component, and discarding the unification of gravitation and electromagnetics along with it. Serious errors were made and still exist in many of the fundamental definitions; in fact, many of them aren't definitions at all. Nearly every engineer and physicist can readily calculate potentials -- *all*, of course, on the "dissipation" side where the potentials are actually the amount of potential that was collected upon a collector and then dissipated. I could find hardly a single physicist who really knew what a scalar potential was prior to a finite amount being collected and dissipated as voltage. Yet 99% of them firmly believed they understood the potential.

So now you have the results of this researcher's long and arduous quest for the golden fleece. Please go forward with it, to make this a better and cleaner world for everyone.

Just remember that the control and use of energy is personal power. The control and use of absolute energy is the control and use of absolute personal power. In the old adage, power corrupts and absolute power corrupts absolutely.

Please use it wisely.

## **NOTES AND REFERENCES**

1. For a good discussion of the modern quantum mechanical view of the vacuum, see I. J. R. Aitchison, "Nothing's plenty: the vacuum in modern field theory," Contemporary Physics, 26(4), 1985, p. 333-391. See also T. D. Lee, Particle Physics and Introduction to Field Theory, Harwood Academic Publishers, New York, 1981 -- particularly Chapter 16, "Vacuum as the source of asymmetry." See Timothy Boyer, "The classical vacuum," Scientific American, Aug. 1985, p. 70; Walter Greiner and Joseph Hamilton, "Is the Vacuum really Empty?", American Scientist, Mar.-Apr. 1980, p. 154; Jack S. Greenberg and Walter Greiner, "Search for the sparking of the vacuum," Physics Today, Aug. 1982, p. 24-32; Richard E. Prange and Peter Strance, "The superconducting vacuum," American Journal of Physics, 52(1), Jan. 1984, p. 19-21; R. Jackiw and J.R. Schrieffer, "The decay of the vacuum," Nuclear Physics B, Vol. 190,

1981, p. 944. See Paul Davies, Superforce, Simon and Schuster, 1984 for a layman's overview of modern physics, including the modern view of the vacuum.

2. E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. Since the scalar potential actually consists totally of a set of hidden bidirectional EM waves, then *scalar interferometry* is possible, and not just an oxymoron as it would seem without considering the inner wave structure of the scalar potential. Two scalar potentials (each of which is a multi-biwave set) can interfere; it is just a special kind of multiple wave interferometry between their internal wave compositions. This is a major point of profound impact on physics. Whittaker in fact showed that *all classical EM* could be replaced by such scalar EM potential interferometry. See E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Further, scalar interferometry has been proven; today it is called the Aharonov-Bohm Effect. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 458-491. For confirmation and discussion, see Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm Effect," Physics Today, 39(1), Jan. 1986, p. 17-20. For an extensive discussion of the Aharonov-bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," Reviews of Modern Physics, 57(2), April 1985. Modern scientists have generally been unaware of the inner wave structure of the interfering potentials and have utilized only quantum mechanical theory for the interference. Consequently, they have been able to experimentally establish the AB effect for only a few thousand Angstroms distance. With the Whittaker formulation, the AB effect becomes distant-independent, because the necessary potentials can be fabricated as laser-like beams, simply by assembling the proper Whittaker multibeam set. Also, Ignatovich pointed out that the Schroedinger potential can also be decomposed into just such an internal bidirectional EM wave set. See V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

3. See Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," Journal of Mathematical Physics, Vol. 26, 1985, p. 861; "Localized Transmission of Wave Energy," Proc. SPIE, Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts, 1989, p. 396-397; "Localized Transmission of Electromagnetic Energy," Physical Review A, Vol. 39, p. 2005; "Localized Wave Transmission Physics and Engineering," Physical Review A, 1992, (in Press); "Localized wave transmission physics and engineering," Proc. SPIE Conference on Intense Microwave and Particle Beams II, Los Angeles, CA, vol. 1407, Jan. 1991, p. 375-386. See Richard W. Ziolkowski, Amr M. Shaarawi, and Ioannis M. Besieris, Nuclear Physics B (Proc. Suppl.), Vol. 6, 1989, p. 255-258; R.W. Ziolkowski, and D.K. Lewis, D.K., "Verification of the Localized Wave Transmission Effect," Journal of Applied Physics, Vol. 68, 1990, p.6083; Richard W. Ziolkowski, Ioannis M. Besieris, and Amr M. Shaarawi, "Localized Wave Representations of Acoustics and Electromagnetic Radiation," Proceedings of the IEEE, 79(10), Oct. 1991, p. 1371-1378; I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "A bidirectional travelling plane wave representation of exact solutions of the scalar wave equation," Journal of Mathematical Physics, 30(6), 1989, p. 806; A.M. Shaarawi, I.M. Besieris, and R.W. Ziolkowski, "A novel approach to the synthesis of nondispersive wave packet solutions to the Klein-Gordon and the Dirac equations," Journal of Mathematical Physics, 31(10), 1990, p. 2511; "A nondispersive wave packet representation of photons and the wave-particle duality of light," UCRL-101694, Lawrence Livermore National Laboratory, Livermore, CA, 1989; "Diffraction of a classical wave packet in a two slit interference experiment," UCRL-100756, Lawrence Livermore National Laboratory, Livermore, CA 1989; "Localized energy pulse trains launched from an open, semi-infinite, circular waveguide," Journal of Applied Physics, 65(2), 1989, p. 805; R.W. Ziolkowski, D.K. Lewis and B.D. Cook, "Experimental verification of the localized wave transmission effect," Physical Review Letters, 62(2), 1989, p. 147; R.W. Ziolkowski and D.K. Lewis, "Verification of the localized wave transmission effect," Journal of Applied Physics, 68(12), 1990, p. 6083; M.K. Tippet and R.W. Ziolkowski, "A



bidirectional wave transformation of the cold plasma equations," Journal of Mathematical Physics, 32(2) 1991, p. 488; A.M. Vengsarkar, I.M. Besieris, A.M. Shaarawi, and R.W. Ziolkowski, "Localized energy pulses in optical fiber waveguides: Closed-form approximate solutions," Journal of the Optical Society of America A, 1991.

4. For a precise statement of the distortion correction theorem, see Amnon Yariv, Optical Electronics, 3rd Ed., Holt, Rinehart and Winston, New York, 1985, p. 500-501.

5. Both wave and antiwave co-exist in the vacuum simultaneously, forming a stress wave. The entity that is stressed is the rate of flow of time. In the common interaction with matter, the time-forward half of the stress wave normally interacts with the electron shells of the atom, giving electron translations forces. The time-reversed or anti-wave half interacts with the nucleus, giving the Newtonian 3rd law reaction (recoil) forces. The so-called "EM wave" in vacuum is a *gravitational* wave. It is a wave of oscillation of the rate of flow of time. It is rather like a sound wave in air, as Tesla pointed out, and it is a longitudinal wave, not a transverse "string" wave.

6. As pointed out by Nikola Tesla. Tesla was correct, and all the textbooks with their transverse "string" waves are in error. *There are no strings in the vacuum!*

7. E.g., see Clayton R. Paul and Syed A. Nasar, Introduction to Electromagnetic Fields, 2nd Ed., McGraw-Hill, New York, 1982, p. 113.

8. E.g., see Clayton R. Paul and Syed A. Nasar, *ibid.*, p. 100-101. See also Raymond A. Serway, Physics For Scientists And Engineers, With Modern Physics, Saunders College Publishing, Philadelphia, PA, 3rd Ed., Updated Version, 1992, p. 752-755.

9. Sommerfield's theory of metallic conduction was based on Drude's concept that the outer valence electrons of a conductor, which do not form crystal bonds, are free to migrate through the crystalline lattice structure, and so to form an electron gas. At room temperature, by quantum mechanical considerations, these free electrons are moving randomly, but at an average velocity on the order of  $10^6$  meters per sec. E.g., see Martin A. Plonus, Applied Electromagnetics, McGraw Hill, New York, 1978, p. 54-58, 62-3, 376-7. If you wish to know just how much power exchange is driving the collisions of the electron gas in a copper wire, here is an illustration. In one cubic centimeter of copper wire, the power exchange in and out of the electron gas is some 4 billion billion watts. That's the equivalent of 4 billion large electric power plants, each of 1,000 megawatt capacity. And one cubic centimeter of copper is a lump about the size of the end of our little finger.

10. E. g., see Raymond A. Serway, *ibid.*, p. 743-744 for a discussion and calculation of the electron drift velocity in copper.

11. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. 1, 1963, p. 2-4. In the classical EM theory launched by Maxwell and later modified by Heaviside et al, this problem did not exist for the original theoretical formulation. In that formulation by Maxwell, and continued by Heaviside, a material ether is assumed for the model. The Michelson-Morley experiments of 1887 destroyed the notion of the material ether, but the classical electromagnetics model has never been corrected to rectify its very serious foundations flaw in this respect.

12. Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, 1963, p. 283-287. Note on p. 283 that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. In spite of this, most classical electrodynamicists continue to adhere to the notion that the EM field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field. E.g., see J.D. Jackson, Classical Electrodynamics, 2nd Ed., John Wiley & Sons, New York, 1975, p. 249. Note that holding such a concept is tantamount to

holding on to the material ether, and assuming that the vacuum itself is "measurable" or "observable."

13. The formula  $F = ma$  is simply an algorithm for calculating the magnitude of the force. It states that "the magnitude of the force is equal to the magnitude of mass that is accelerating, multiplied by the magnitude of the acceleration." No such "equals" formula is a definition; it is only a calculational algorithm.

14. This falsifies one of the assumptions in the common notion of the scalar potential; that its gradient in vacuum is a force field. Let us falsify another part of the conventional concept of the potential. Take the notion of forcibly pushing in "against the field" of a trapped charge, a unit charge from infinity. At any point you stop, the work  $n$  you have done on the unit charge is equal to the value of the potential, so it is said. Actually, you pushed in a one-coulomb collector, and have collected and dissipated as work  $n$  joules of energy on that one coulomb. In other words, the energy density of the potential there, if collected and dissipated on a collector, is  $n$ , where  $n$  is joules per coulomb (NOT joules!). To prove it: suppose we go out on 10,000 radials from that point, and push in from infinity 10,000 unit charges from infinity. Then, the total work done "against the potential gradient" ("field", in common language) is now 10,000  $n$ . This makes no sense at all from the conventional view (which carefully refrains from multiple collectors!). It makes good sense from our view of the potential as having infinite energy but a finite energy density. In that case, the more collectors, the more energy collected, for dispersal as work.

15. For a discussion, see Y. Aharonov and D. Bohm, 1959.

16. Nikola Tesla, "The True Wireless," Electrical Experimenter, May 1919, p. 87.

17. The power in the load is always the time rate of dissipation of energy that has just been freely collected by the load for dissipation.

18. One can foresee a day in the not too distant future when any power company continuing to do such an unthinkable thing will have a class action suit brought against it by its customers!

19. T. E. Bearden, "Mechanism for Long-Term Cumulative Biological Effects of EM Fields and Radiation," March 1993 (in preparation).

20. Precisely analogous to a heat pump's operation - which as is well-known can readily be "over unity" in its efficiency. The maximum efficiency of the heat pump is about 8.22. E.g., see David Halliday and Robert Resnick, Fundamentals of Physics, 3rd Edition Extended, John Wiley and Sons, New York, 1988, Volume 1, p. 510-519. Good heat pumps normally have about 4.0 efficiency.

21. External power in an electric circuit refers to the dissipation rate (in the circuit's external load) of the potential gradients on the activated/potentialized electrons. Internal power refers to the dissipation rate in the circuit's bipolarity source.

22. We call strong attention to T.W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," Annales de la Fondation Louis de Broglie, 16(1), No. 1, 1991, p. 23-41. In this important paper, Barrett shows that a higher topology EM, such as quaternion EM, allows many things to be accomplished with circuitry that are not apparent to a conventional vector or tensor analysis of that circuitry. He also shows the Nikola Tesla's circuits accomplished this higher topological functioning.

23. It is easy to test this. Connect several different wires to a single source of potential gradient. With respect to ground, the end of each one of those wires has the same potential gradient as does the original source with respect to ground. If you connect 10 wires to a single "100-volt" potential gradient source, you will have ten 100-volt potential gradients appear. You can use

each of these ten potential gradients as a primary source. From each of these new primary sources, you can branch ten more, and now have a hundred potential gradient sources. You can treat each of these hundred new sources now as a primary source. To each one, you can add a switcher, collector, and external load, and drive all 100 loads. Or instead, you can put ten switcher/collector/external load circuits with each of the hundred new primary sources, and power all 1,000 external loads. Energy/potential is free from any source, so long as you do not demand power from the same source.

24. Per Whittaker and Ziolkowski, this VPF exchange -- from consideration of its wave aspects - consists of a harmonic series of bidirectional waves.

25. We are easily permitted to have free energy and violate the "local energy conservation law for a closed system." This is because the system is not closed, and so instead we must apply local energy conservation for an *open* system with a hidden source. In any given time interval, the energy taken (scattered) from the system as external work cannot exceed the sum of the unscattered trapped energy that was in the system initially and the unscattered energy that flowed into the system during that time interval.

26. You can actually do away with the separate collector, and utilize the doped copper DSC material itself as the collector. However, you will not be able to collect nearly so much energy in each collection cycle, for dissipating in the load in the subsequent work cycle.

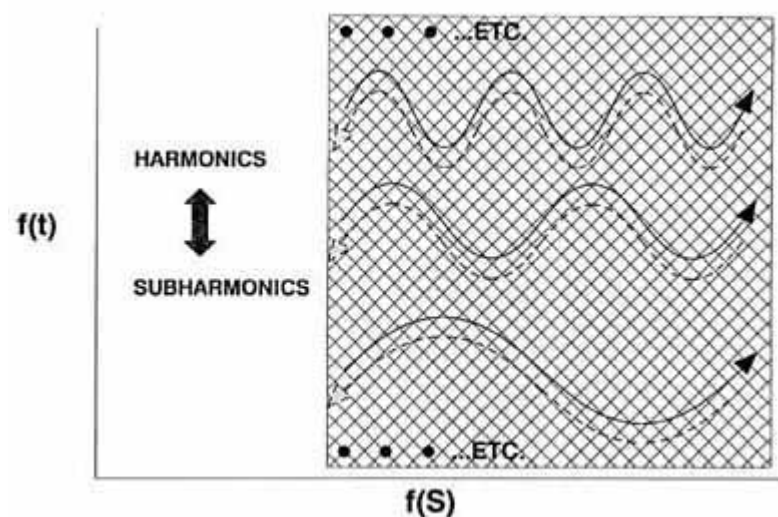


Figure 1a. Internal wave structure of the scalar potential.

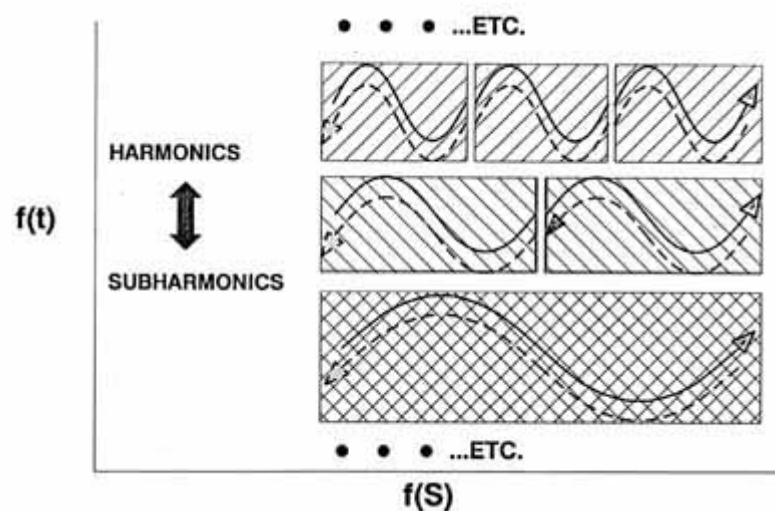
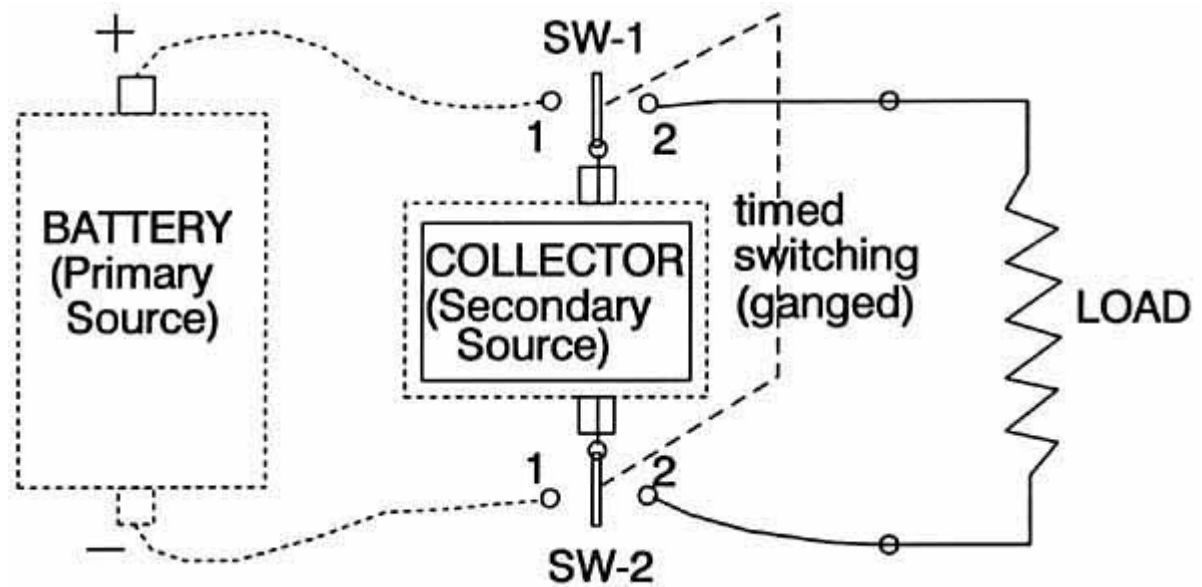


Figure 1b. Internal wave structure of the scalar potential (end).



Nondissipative components are shown by dotted lines.

Dissipative components are shown by solid lines.

Figure 2. The secret of extracting and using free energy.

[Additional Comments - 12 March 1993](#)

[Update - 5 February 1994](#)

[Update - 13 May 1994](#)

## ADDITIONAL COMMENT:

March 12, 1993

The present classical CEM model prescribes closed, energy-conservative type systems. If any electrical device works totally according to the accepted CEM model, it cannot and will not ever produce overunity. Simply put, you have excluded any hidden EM source that is freely replenished, and you have assumed continual killing of all energy input sources utilized. On the other hand, if one takes the view that the overunity electrical machines are possible after all, then -- *whether one is consciously aware of it or not* -- one has implied that classical CEM must somehow be substantially flawed. If it's flawed, then -- being a model -- some of its primary assumptions (postulates) and/or fundamental definitions must be in error. The proper place to go after "free electrical energy" is to rigorously examine CEM, over and over, until flaws are uncovered which allow a hidden, freely replenished source of input energy. In other words, one must find a way to "open" the electrical system to an inflow of energy from this source, without closing off the source. Until one finds such an "extension" of CEM, one has no model or concept which can reasonably be expected to provide overunity electrical energy output. Note also that, while the majority of the EM circuitry of an electrical overunity machine may obey CEM, at least one section -- where the source is freely tapped and the excess energy extracted -- must violate CEM.

I have spent many arduous years in this very process, right or wrong. The bottom line of my search is this: the only verified (by Whittaker and Ziolkowski) (WZ) "freely replenished river" of EM energy, that can act as the required "free energy" source for input to the would-be overunity electrical system, is the *potential*. But to understand the potential, completely new definitions are required for many entities, among them being energy, electrical charge, electrostatic scalar potential, voltage, etc. The present so-called "definitions" of these entities in CEM are either non-existent, entirely wrong, or quite unsatisfactory.

So far, the search has uncovered two major ways to tap the continually-replenished EM energy in the scalar EM potential:

(1) use of the inner WZ internal biwave structure of the potential as pump waves on/to a nonlinear material (such as the atomic nucleus), so that the nucleus becomes a pumped phase conjugate mirror. Then, by normal phase conjugate optical theory, simply inputting a small signal wave will produce an amplified phase conjugate replica (PCR) wave emitted from the mirror material, and this PCR will precisely backtrack the original input signal wave's path (see the *distortion correction theorem*) back out of the nucleus, out of the atom, and into the external circuit. There, the amplified PCR wave can be "filtered off" and sent to the external load, to power the load. The Floyd Sweet vacuum triode works precisely by this mechanism. Note particularly that Barrett has shown that higher topology EM (such as the original quaternion EM theory) can accomplish such "optical functioning" without the use of optical materials. To do Sweet's vacuum triode type process is thus theoretically possible with electrical circuitry alone, but one must have more than the current understanding of CEM, as Barrett pointed out. In other words, one can "open" any 4-space system by adding hyperspace (or subspace, if one insists on retaining Minkowski 4-space). One can thus have a hyperspatial source. Indeed, Ziolkowski and others have already pointed out that the WZ type decomposition of the scalar potential is essentially equivalent to having *complex sources*.

(2) The second way is to "trap the electron gas electrons" in a separate collector, feed "current-free potential" to the collector from a primary battery or other source of potential, and collect a bunch of excess energy (potential) in the collector's "penned up free electron 'horses'" waiting to carry the excess energy to the load and dissipate it there, once they have been released. Then, one switches the primary potential source away from the collector, while the "energy-loaded horses" are still trapped and straining at the bit, so that no work can be done -- by those agitated horses when they stampede out of there -- on the internal resistance of the primary

source, to destroy or reduce it. In the same switching action, the collector with its "snorting but still trapped electron horses" is switched across the load to form a totally separate circuit with it, having nothing at all to do with the original primary source of potential. Then, the agitated horses are released, and thunder out through the load, scattering their riders (excess energy) in all directions in the load, producing work/heat and powering the load. They will also charge on around to the reverse side of the collector, and kill its charge separation (kill its potential) as well, just as does any ordinary circuit.

The major disadvantage of method 1, as we presently have seen it done (however, check Barrett's demonstration that Tesla's patented circuitry is capable of doing it by circuitry alone), is that *time-reversed* electrical energy is produced. So Method 1 has some serious drawbacks. "Time-reversed energy stuff", which should stay in the atomic nucleus as Newtonian 3rd law reactions and 3rd-law energy exchanges, is dragged out. Unusual effects on biological systems can occur. Antigravity effects can occur. Other hidden processes in the universes, that affect the atomic nucleus, can be gated into the external circuitry, causing disaster. Monopoles can be deposited in the magnets, causing them to explode like hand grenades. Most of the new "massive time-reverse energy" phenomenology is still unknown. One cannot at this stage of ignorance adequately guarantee human safety. I presently don't see just how this kind of energy can pass an Underwriter Laboratories' testing and certification, until a lot more exhaustive work is done to understand the new phenomenology.

Method 2, however, yields ordinary, garden-variety, positive-time electrical energy. The method presented in the paper is my own discovery. No unusual time-reversed phenomena are involved. It would appear to be eminently practical to produce and certify power units based on Method 2. The phenomenology and risks are the same as for ordinary, time-forward power systems.

Method 2 has another unique characteristic: as a system, *all the subsystems are already in the literature and validated. They have just not previously been put together in this fashion.* So development of the system really represents an "integration" problem only, after one first does a little development of a proper degenerate semiconductor material (DSM). In other words, one first develops (and tests) the exact doping materials and percentage, to get a DSM material that is still a good conductor but has a relaxation time of -- say -- one tenth of a millisecond. One builds the wires from the battery to the collector out of this new DSM material. If one uses a capacitor for the collector, the plates must be made out of the new DSM material, not out of normal "pure conductor" material. Then one develops a switcher that switches in one tenth (or less) the relaxation time of the DSM, or in this case in one hundredth of a millisecond. That switching time, of course, is easy for any decent electronic technician or electronic engineer. One also develops a timing circuit that will (1) sense the status of the discharge of the collector energy through the load, and (2) trigger the switching at the correct times so that a smooth two-cycle (collect, discharge) process results. Note that the lengths of cycle one and cycle two are not necessarily equal at all. One may use multiple collectors/loads simultaneously, cascaded collectors/loads, etc. Hundreds of variations are possible and feasible.

It is not possible to do anything with this discovery in a normal manner. I would dearly like to be economically independent, so I could work full time in my efforts on free energy, antigravity, extended EM healing, cancer, etc. Many orthodox scientists will also fiercely resist this upstart notion of "overunity" electrical machines to the bitter end. When powerful economic interests realize one has such thing *for real*, one is certainly going to be stopped, jailed, or killed, or he may just "mysteriously vanish" and never be seen again.

So I just freely released and distributed my discovery of method 2, in the paper "The Final Secret of Free Energy". It is deliberately targeted toward technicians, junior engineers, and educated laymen. (The principles and definitions raised, however, can be debated to the nth degree by knowledgeable foundation scientists). The paper has already been distributed

worldwide. Now the *principles and definitions* are available to everyone. If they are in error, shortly that will be proven in spades. If they are correct, that will also be established shortly.

Anyone who wishes can develop and patent a particular application. There's no longer any way to stop this information from being disseminated and utilized. I hope that a flurry of development and patenting activity will result around the world. Get cheap, clean electrical energy to everyone. Bring on the electric auto, clean up the noxious auto exhausts, get rid of giant oil spills, and clean up the biosphere.

Tom Bearden

# Additional Information On *The Final Secret of Free Energy*

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## Introduction

My associates and I have filed the first patent application on two electrical overunity processes and devices; one similar to what is outlined in *The Final Secret of Free Energy* [[Ref 1](#)] and an additional variation utilizing, as collectors, standard step-charged capacitors rather than degenerate semiconductor materials. In 60 to 90 days, we will have a very enlightening paper (more likely a book) ready on that. We also plan to file several more extremely fundamental overunity patent applications from additional phenomena and mechanisms that we have uncovered.

In this paper, it is assumed that the reader is familiar with the content of *The Final Secret of Free Energy*. Figure 1 shows the invention schematically, and we briefly summarize it as follows:

## Summary of the Invention

A method and apparatus for extracting bidirectional EM wave energy from the vacuum through the scalar potential gradient across the terminals of an electrical source, collecting the excess energy in a collector without entropy, then separately discharging the collected energy through a load to perform work, without sending the load current back through the primary source against its potential gradient; i.e., against its back emf. Removing the load current from the source thereby substantially reduces the production of work inside the source to dissipate its bipolarity; said internal dissipative work being well-known to be the cause of exhaustion of the source's ability to continue to furnish emf to the external circuit. By reduction of its internal dissipation, the source is enabled to furnish more energy for dissipation in the external load than is utilized to dissipate the source internally. Hence the source is enabled to operate with an overunity operational efficiency. The system permissibly operates as an "open" system, and extracts and utilizes excess EM energy from a free-flowing external source (the flux exchange between the surrounding vacuum and the bipolarity of the source), hence it can operate at an efficiency greater than unity without violation of the laws of physics, in a manner analogous to but entirely different from a heat pump. In this invention, it is not the purpose of the primary source to furnish current and dissipative power to the external circuit. The bipolarity of the source is utilized primarily as a dipole antenna to receive the bidirectional EM wave energy flow from the vacuum, and direct it without entropy through a switching unit to the collector. Conduction electrons in the collector are temporarily restrained while being overpotentialized by the excess energy being collected upon them. The collector and its overpotentialized electrons are then switched away from the primary source, and connected across the load as a separate circuit and closed current loop. The electrons in the collector and their excess energy are then automatically released to flow as current discharge through the load, releasing their excess energy to perform useful work in the load. The collector is then switched away from the load and back across the primary source, and another collection cycle is initiated. Iteration of the collection and discharge cycles provides power to the load. Additional collection and smoothing capacitances for smoothing the iterations and furnishing steady power to the load may be added as desired. The invention violates the



closed circuit practice of powering loads, but does not violate the conservation of energy law, the second law of thermodynamics, or any of the other known laws of physics.

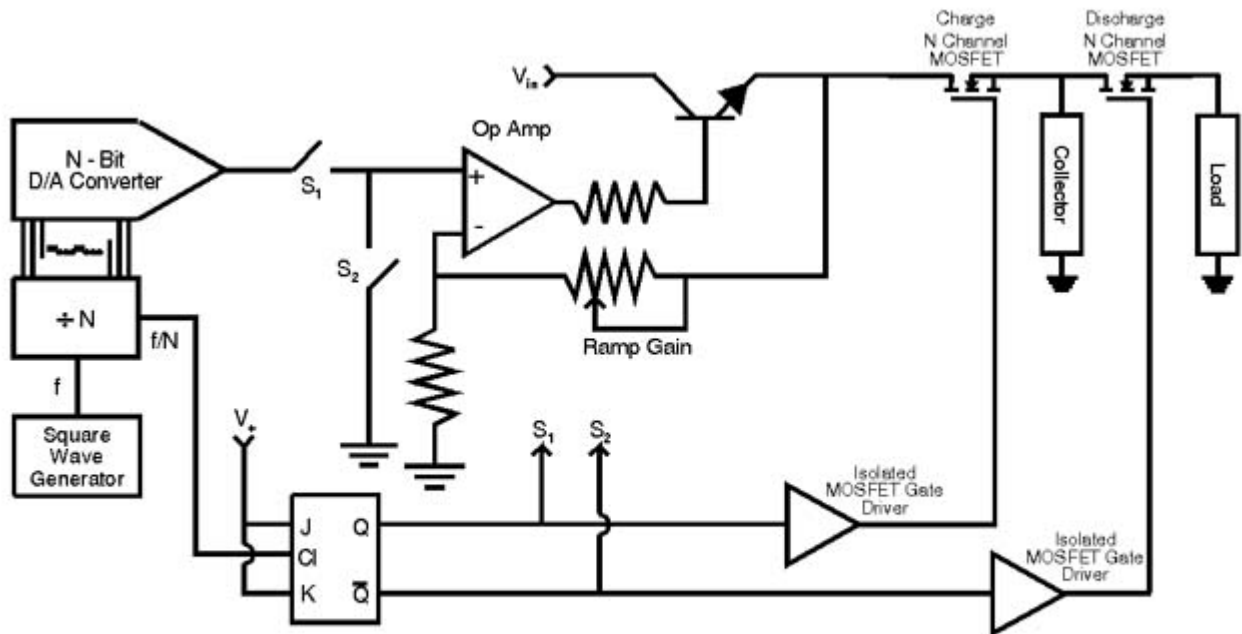


Figure 1A

**Figure 1a.** Type circuit utilized for ramp-up charging of a capacitor without work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

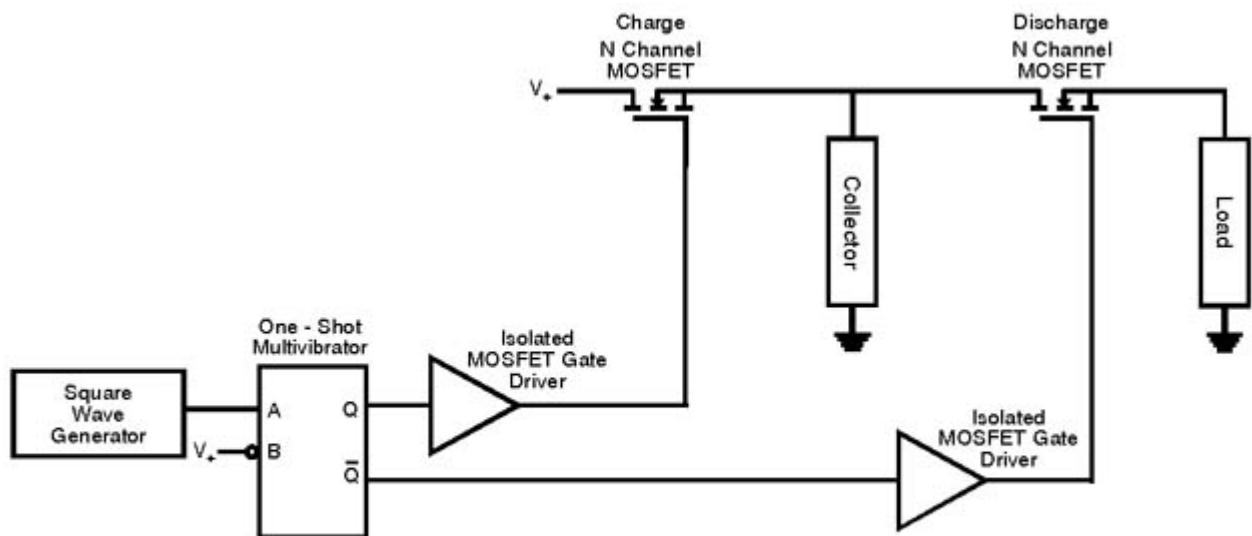


Figure 1B

**Figure 1b.** Type circuit for single pulse charging of a degenerative semiconductor collector without appreciable work, and separate discharge of the collected energy in the load without substantial depletion of the primary source.

## Use of Step-Charged Capacitor as the Collector

Fulfilling our search for a special material with the extended electron gas relaxation time for the collector, a material alloy composed of 98% aluminum and 2% iron is tentatively suggested. However, production of this alloy is particularly difficult, so we are still researching for a solution that is more easily manufactured.

Meanwhile, the necessity for using a special material for the collector has been bypassed by another procedure we have utilized. Rigorously one can use a *normal capacitor* as the collector, if one step-charges it in several hundred small incremental rectangular voltage steps (stair-step-charging). The proof that this can freely charge a capacitor with energy, without having to do appreciable work, is already known in the literature. You can charge the capacitor *without entropy* and essentially without drawing electron mass current. [[Ref 2](#),[Ref 3](#),[Ref 4](#),[Ref 5](#)]

Actually we consider the capacitor to be charged by *massless displacement current flow*, which for circuitry purposes we consider to be  $d\phi/dl$  -- a flow of pure potential (trapped EM energy) along a conductor or through the vacuum; i.e., under conditions where *mass displacement current flow* does not exist. [[Ref 6](#), [Ref 7](#)]

## Massless Displacement Current Is Freely Available From Any Source

The principle embodied in the invention is that one can extract all the free EM energy one wishes, from any electrical power source, as long as it is extracted via massless displacement current and not by *electron mass* flow current. [[Ref 8](#)] And one can freely collect this extracted energy from a source into an ordinary capacitor if one does it correctly, *because one can charge the capacitor via massless displacement current without expending any appreciable work inside the source to dissipate its dipolar separation of charges*.

## Every Electrical Source of Potential Is Already a Free Energy Source

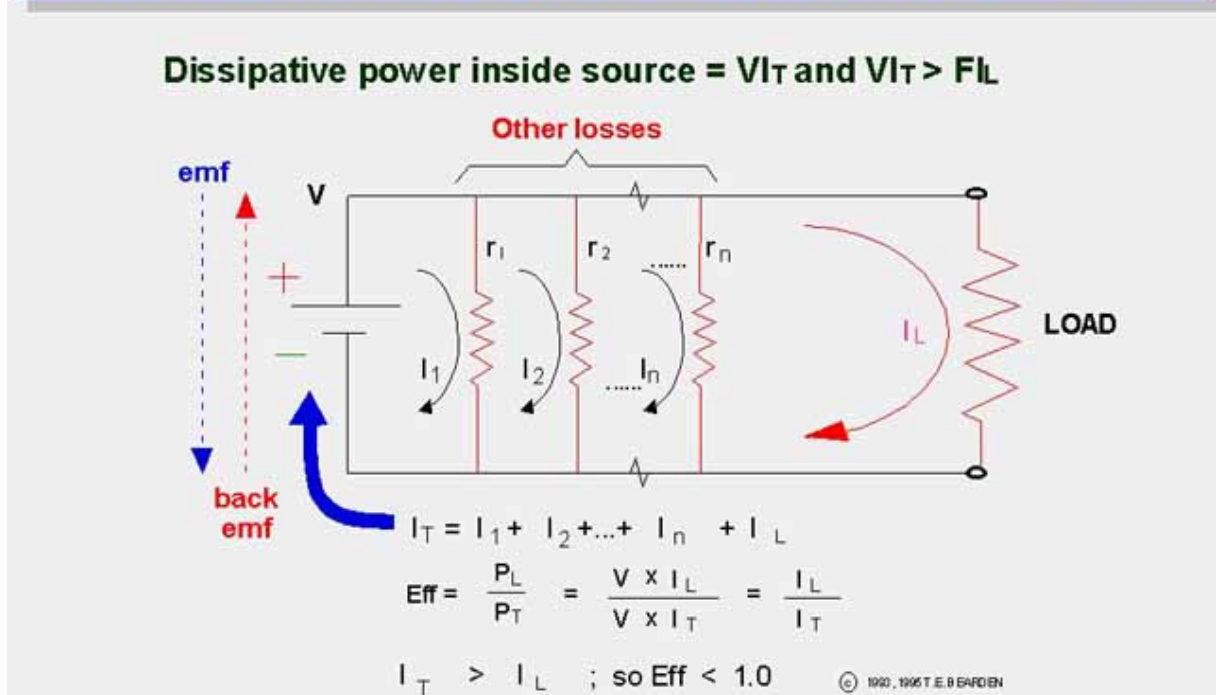
We thus advance a revolutionary concept: all present power systems already utilize *free energy source-antennas*. However, the standard two-wire closed circuitry diabolically utilizes one-half the total free energy extracted by the source-antenna from the vacuum, to perform work inside the source-antenna to dissipate its dipolarity and hence to dissipate the *source-antenna (i.e. the receiver) itself*.

The source already acts as a "dipolar antenna" to continually receive "scalar potential" current  $d\phi/dl$  (massless displacement current) from the vacuum. [[Ref 9](#)] Previously scientists and engineers have simply ignored this special massless EM energy influx. For load-free (i.e., mass-current-free) conditions,  $(d\phi/dl)$  is continually received from the vacuum *by any dipole* (i.e., by any *dipolar source-as-an-antenna*), and the flowing energy is continually exchanged back and forth between the vacuum and the dipole.

This free energy exchange with the vacuum is also true of any two points in our circuit that possess an open-circuit voltage or potential difference between them. Two such points act as a dipole. Free energy dipolar antenna sources are everywhere; we just have to learn how to break the symmetry in their energy flux exchange with the vacuum, collect some of the freely flowing influx, and distribute that collected excess energy to an isolated load to *separately* power it.

In other words, we simply have to implement circuitry that operates analogous to the standard heat pump cycle.

# WHY PRESENT SYSTEMS HAVE COP < 1.0



**Figure 2.** Why present electrical power systems have underunity operational efficiency.

## Conventional 2-Wire Closed Circuit Operation

In the conventional 2-wire system a load is added to the source-antenna, allowing circulation of electron current in a closed circuit through the load and then through the ground return line back to and through the dipolar source-antenna. The only useful reasons for this "closed circulation" of the electrons are (1) it is simple, *easy*, habitual, and accepted, (2) all our components, instruments, and methodologies are developed in accordance with this usage, (3) one uses the electrons as a *working material fluid* to receive, transport, and discharge excess EM energy, and (4) forcing the electrons back through the back emf *reloads* the spent electrons again with excess EM energy in the form of little  $\nabla\phi$ 's (excess trapped energy density) upon each recycled electron.

Some of the excess  $\nabla\phi$  collected upon the electrons is expended in the load as useful work, but one half of the total is expended in driving the spent (without excess  $\nabla\phi$ ) Consequently all conventional 2-wire circuits, which return all external electron-flow current loops back through the source, are always underunity devices, as is shown in Figure 2. Eerily these conventional sources are already free energy devices, which are unwittingly attached to circuitry specifically designed to utilize part of their freely received energy to deplete or destroy themselves, i.e., they are already *open systems receiving free energy from the vacuum, but they are hooked up and designed in a suicidal manner so as to use at least half of that freely extracted energy to re-close the system and shut off the influx of free energy*. Since at least some of the remaining half of the energy is lost in inefficiencies, frictional losses, etc., less than half the total free energy goes to the load. So there is always less useful work being done in the load than the destructive work being done inside the free-energy source-antenna to destroy it.

## Operational Efficiency

We define operational efficiency Alpha as the average power expended in the load to power it, divided by the average power expended inside the source to dissipate its dipolarity. If Alpha < 1, one has to externally furnish energy to do restorative work upon

the source to replace or offset that amount of destruction being done inside the source, if one wishes the source to continue to operate as an energy-receiving antenna. If  $\text{Alpha} > 1$ , then if the additional losses are minimal, the device can conceivably run itself while furnishing some energy to a load to produce useful work.

## **We Must Excise the Suicidal Closed Circuit To Achieve Overunity**

There is no mysticism in the overunity electrical device. The device is an open system that extracts excess energy from the vacuum, collects it, and transports it to the load to separately power the load. It is simply analogous to the standard heat pump cycle. It is also directly analogous to presently operating overunity systems such as windmills, waterwheels, solar cell arrays, and hydraulic turbines in a dam installation. All that we have done is to eliminate or dramatically reduce the standard cancerous mistake in conventional electrical power systems wherein much of the excess energy freely extracted from the vacuum by the already-overunity electrical source is then utilized to destroy the source's energy reception ability!

As we stated, in the conventional electrical device and circuitry, more destructive work is always done inside the source than is done usefully in the external load. Hence the conventional operational efficiency is always underunity.

### **Legitimate Overunity Systems Comply With Well-Known Requirements**

There are many alternative and well-known permissible free energy systems that operate at overunity operational efficiency: solar cells, windmills, hydraulic turbines, heat pumps, and water wheels, to name a few. All of these are open systems, receiving an influx of free energy from a natural energy flow, and collecting and gating some of that energy to be dissipated in a load to do useful work. All of them are permissible overunity devices, since (1) they are open systems, (2) they constantly receive a free energy influx from an external source, (3) they extract and collect some of this energy without dissipation, (4) they dissipate this collected energy in a load, and (5) the discharge process is totally separated and isolated from the "collection-from-the-source" process.

### **No Legitimate Overunity System Is Intentionally Made Self-Destructive**

Not a single one of these open overunity systems foolishly uses part of its freely extracted and collected energy to re-close the system and shut off its influx of free energy flow! What engineer would build a solar array such that, the moment the current started to flow, it powered a shutter arrangement to gradually close and shield off the solar array from the sun? Who would build a windmill so that, whenever the angled-blade assembly rotated in the wind to furnish power, a gearing feedback assembly also slowly caused the individual blades to rotate into a position parallel to the wind, thus stopping the windmill?

Yet this is precisely what the conventional electrical power system does with its external circuit. It deliberately utilizes half of the freely extracted energy to re-close the system and shut off the free energy flow between the vacuum and the source-antenna, by destroying the receiver-antenna!

However, this "suicide circuit" practice is guaranteed to keep the power meter on your home or business, and to keep the meter on the gas pump for fueling your automobile. Perhaps one may be forgiven for suspecting that, at the deepest levels of financial control,

this may be the real purpose in seeing that the existing interpretation of classical EM stays "as is."

## **All Electrical Power Sources Are Already Free Energy Receiving Antennas**

All conventional electrical power systems already contain fully functional free energy systems in their source component. Each conventionally designed system is, however, deliberately suicidal, since part of the system's own energy is utilized to work against itself and destroy itself. This is primarily due to the preoccupation of engineers with power and work. They do not consider the source as an energy source, but as a power source. Power being the time-rate of performing work, and work being the dissipation of energy, they are thus naturally conditioned to think of the "dissipation of the source" as its natural functioning.

In fact, hardly a single one of them is aware that EM energy itself is a free-flowing process. Only a finite collector possesses a finite collection of EM energy. In nature, the potential gradients of all dipoles are already rivers of free-flowing EM energy exchange with those dipoles, where the energy density is freely furnished and is essentially free for the taking. It is mind-boggling that we have all been conditioned to extract this free energy furnished by nature and the creator, but to always utilize half of the extracted energy to destroy the receiver-antenna and thus strangle the flow!

In our work, we simply have excised this "self-destructive" cancer and reworked the circuitry so that only a minimal amount of the freely extracted energy is utilized for internal destruction of the source-antenna.

## **Thermodynamics and Open Overunity Systems Not In Equilibrium**

In our approach we have an open system during every collection cycle, with an external source of energy and a continual energy influx. We have deliberately broken the local symmetry of the system's energy exchange with the vacuum, by spatially and temporally separating the energy collection and energy discharge phases. Overunity operational efficiency is permissible for such a system without violation of any of the laws of nature. Some of the influx of excess energy from the vacuum into the dipolar source antenna is transported without loss to the collector and collected. The collected energy in the collector is then separately discharged through the load, without any of it being discharged back inside the source-antenna. Note that we have broken local energy flow equilibrium but not global energy flow equilibrium.

The second law of thermodynamics, e.g., does not even apply to such an open system not in equilibrium. Classical thermodynamics cannot even compute the entropy of an open system not in thermodynamic equilibrium, as is well-known to thermodynamicists. [[Ref 10](#)]

What classical thermodynamics does have to say, is that such an open system must contain excess energy when compared to the closed system in equilibrium, because the closed system in equilibrium is in the maximum entropy condition. [[Ref 11](#)] Global conservation of energy is not violated, just as it is not violated in a windmill or in a heat pump, which are similar open systems. Local conservation of energy (which applies only to a closed system or to a system in total equilibrium) does not apply because the system is open and not in equilibrium.

## **Permissible Electrical Overunity Is Not Perpetual Motion**

An open system out of equilibrium need not conform to (1) the local (closed system, equilibrium conditions) conservation of energy nor to (2) the second law of thermodynamics (which assumes equilibrium conditions). It must and does conform to the global conservation of energy, just as does a waterwheel or windmill. We strongly stress that the overunity electrical device is not a "perpetuum mobile." [\[Ref 12\]](#) The electrical operations and systems we propose are perfectly permissible by the known laws of physics and do not violate any of them. We propose a permissible series of overunity electrical systems.

## The Heat Pump Analogy

In one way of viewing it, all we have done is utilize the potential as a more modern type of quantum mechanical fluid having hidden bidirectional flowing EM energy. [\[Ref 13\]](#), [Ref 14](#), [Ref 15](#), [Ref 16](#) QM already certifies that the potentials, not the force fields, are the primary causes of all EM phenomena. Contrary to classical EM theory, the force fields are effects in, on, and of the charged particles themselves. Consequently, if the potentials are the primary causes of all EM phenomena, then for free energy to perform work (free causes to collect and generate desired effects) we must turn to the potentials.

We have utilized a hookup and switching arrangement so that energy-free collection is totally separated from collected energy discharge in the load. In short, we have done what a normal heat pump does, when it uses the air with its thermal energy as a working energy-containing fluid. Consequently, overunity operational efficiency of analogous electrical devices is perfectly permissible, and not prohibited by the known laws of physics.

## An Electrical Power Source Is a Dipolar Antenna For Free Reception of Energy

An electrical power source is in fact only a dipolar antenna for reception of potential (hidden bidirectional Whittaker/Ziolkowski waves). All the current you run back through the back emf of the source, to perform dissipative work inside it, is something you yourself are doing to the source. It is not a priori a characteristic of the source!

If no work is done inside the source's internal bipolar separation of charges (i.e., if no electron or ion current is forced back up from the ground return line against the source-antenna's potential and therefore against its back emf), then the dipolar source-antenna will last essentially forever, or until something corrodes or breaks mechanically.

The flow exchange of energy between the vacuum and the dipolar source-antenna is freely driven by all the charges of the universe, in accordance with Puthoff's cosmological feedback loop. [\[Ref 17\]](#)

## Massless Displacement Current

Technically one is using massless displacement current to charge the capacitor, rather than electron mass flow current. It is real energy flow nonetheless; just in work-free, dissipation-free form. As is well-known, one plate of a capacitor already charges the other plate by just this very massless displacement current, transporting real EM energy across the gap between the plates in the process. The electrons themselves do not cross the gap.

Displacement current is already well-known to be "free" energy transport without any dissipation as power and work. By drawing massless displacement current only from the source-antenna instead of electron flow current, you can draw work-free, dissipation-free energy as long as you wish, as often as you wish, and as much as you wish, without ever



dissipating the source-antenna. You just have to collect it onto some trapped electrons or other charges, such as in a capacitor's plates, then switch the collected energy (charged capacitor) separately across a load, in a separate discharge circuit, to discharge through the load as work.

The real trick is to prevent the electrons in the circuit from moving and providing mass "energy dissipation" current inside the source during the collection process. In the original paper, we explained that this could be done by using as a collector a degenerate semiconductor material, with extended electron gas relaxation time. In this paper we have explained how this can be done by step-charging an ordinary capacitor as a collector. We have also included specific references proving (both experimentally and theoretically) that this is correct. With the requirement for special materials removed, there is no reason that a competent researcher cannot develop a step-charged capacitor device to prove it experimentally for himself or herself.

## **Requirement: Proof of Principle and Independent Test and Certification**

My associates and I are proceeding as rapidly as possible toward full-up "proof-of-principle" circuits for open release and certification or falsification by the scientific community and engineers at large. Soon we also expect to release to other researchers information on the kinds of new electrical phenomenology one meets in true overunity electrical devices. These are not in the textbook, at least with respect to electrical power systems. We give some indication of these phenomena below:

### **New Circuit Phenomena Must Be Mastered**

One meets unusual electrical phenomena in attempting to perform overunity electrical operations. For overunity, a priori one must "slip excess potential" through the circuit essentially without losses. That is, one must deliberately pass massless displacement currents through the circuit and at least through some of its components.

Solid-state switching components in particular exhibit unusual phenomena, to say the least, when excess potential is introduced into and through all their internal components inside modern semiconductors. An ordinary MOSFET, e.g., may have 25,000 separate internal components. It is as if someone crammed the entire electronic parts store inside it. Simple switches these semiconductors are not, when exposed to appreciable massless displacement current.

When one "slips in" some pure potential, by SWZ decomposition one has also slipped in some bidirectional EM pump waves. The nonlinear semiconductor materials will function as phase conjugate mirrors when suitably pumped, including at non-optical frequencies. Consequently pumped phase conjugate replicas, self-targeting, formation of quantum potentials, and modular variable effects sometimes begin to evidence. We will address and explain some of these effects in a future paper. For now, we simply state that they occur, and there is a host of extra phenomenology the experimenter may encounter.

However, an iron rule for the experimenter is that, for odd circuit behavior, first exhaust all "normal" causes before turning to the extraordinary causes. One will save oneself a great deal of grief by applying this Occam's razor.

Also in deliberately utilizing displacement current, one is actually employing an expanded, higher topology EM with additional degrees of freedom, similar to that pointed out by Barrett. [[Ref 18](#)] Consequently one encounters a host of additional higher topology EM

phenomenology. In particular one encounters nonlinear optical (NLO) functioning of the semiconductors at any and all frequencies, not just in optical bands.

## Overunity Electrical Devices Are Permissible By The Laws of Physics

The overunity electrical energy system is permissible by the laws of physics and is not in any manner perpetual motion. It simply extracts excess EM energy from an ubiquitous source, through a dipole as a receiver, and collects that excess energy, conducts it to the load, and separately dissipates it in the load to power the load, without using any of the collected energy to perform work inside the source to dissipate the source-antenna. It is directly analogous to a heat pump, which is well-known to perform at overunity operational efficiency under nominal conditions.

### In Conclusion

Primarily my associates and I believe we have corrected an ubiquitous error made in present power systems that prevents these systems from realizing their already-inherent overunity operational efficiency. We also firmly believe that the permissible electrical overunity device is an idea whose time has finally come.

### Notes and References

1. [T. E. Bearden, "The Final Secret of Free Energy,"](#) distributed over the Internet, Feb. 9, 1993. The paper was also published in Magnets, 7(5), pp. 4-26 (1993); in Explore!, 4(3/4), pp. 112-126 (1993), and in several other media.
2. For proof that you can charge an ordinary capacitor almost without entropy, see I. Fundaun, C. Reese, and H. H. Soonpaa, "Charging a Capacitor," American Journal of Physics, 60(11), pp. 1047-1048 (1992). A capacitor can be step-charged in small steps to dramatically reduce the entropy required to charge it. In the limit, a theoretically perfect capacitor can be fully charged without any electrical current or work at all, i.e., you can simply transport the excess energy density (the potential gradient) of the open circuit voltage of the source to the collector, and couple that  $\nabla\phi$  to the electrons trapped in the capacitor plates, without electric current from or through the source.
3. M. G. Calkin and D. Kiang, "Entropy Change and Reversibility," American Journal of Physics, 51(1), pp. 78-79 (1983).
4. F. Heinrich, "Entropy Change When Charging a Capacitor: A Demonstration Experiment," American Journal of Physics, 54(8), pp. 742-744 (1986).
5. V. K. Gupta, Gauri Shanker, and N.K. Sharma, "Reversibility and Step Processes: An Experiment for the Undergraduate Laboratory," American Journal of Physics, 52(10), pp. 945-947 (1984).
6. In most texts the treatment of displacement current is far from adequate. A better treatment than most is given by John D. Krauss, Electromagnetics, Fourth Edition, McGraw-Hill, New York, pp. 437-439, 547-549 (1992). Additional useful insight can be gained from David J. Griffiths, Introduction To Electrodynamics, Second Edition, Prentice-Hall, Englewood Cliffs, New Jersey, pp. 304-308 (1989). Problem 7.51 on p. 335 is also of direct interest, as is particularly the comment by Griffiths below the problem. Additional insight can be gained from David Halliday and Robert Resnick, with assistance by John Merrill, Fundamentals of Physics, Extended Third Edition (1988), John Wiley & Sons, New York, vol. 2, Article 37-4: Displacement Current, pp. 836-837, 839-841. The standard notion is to (1) retain the continuity of current, thus modifying and salvaging Ampere's law, (2) the displacement current is non-physical, i.e., it does not involve the transfer of charged mass, (3) focus primarily upon magnetostatics as to the results achievable by the displacement current, (4) retain the notion of  $\nabla\phi$  as  $\mathbf{E}$ , a force field, thereby



focusing the notion of displacement current upon the change of the E field without the flow of charged mass, and (5) retain the confusion between electrical charge and charged mass that is inherent in the terms "charge", "current", etc. On p. 836 Halliday and Resnick point out that the displacement current is not derived per se, but is a "fit" based upon symmetry arguments, and it must stand or fall simply on whether or not its predictions agree with experiment. On the same page the displacement current is taken to be a linear function of  $d\phi/dt$ . For flow along a circuit where there is no electron mass current, it seems appropriate to replace  $d\phi/dt$  by  $d\phi/dl$ . It is also strongly indicated that one should clearly distinguish between charged mass current flow and the flow of massless charge, which is the approach we have taken.

A final indication of the way conventional scientists tend to regard displacement current is given by Martin A. Plonus, Applied Electromagnetics, McGraw-Hill, New York, pp. 446-448 (1978). Here Plonus uses the prevailing notion of the E field being altered by the flow of massless displacement current. As can be seen, the displacement current is relegated almost to a curiosity of capacitors, and not really too essential except just to "balance the books" and retain Ampere's current continuity.

We now wish to point out something very subtle but very rigorous. CEM erroneously uses  $E = -\nabla\phi$  to equate a mass-free potential gradient with a mass-containing force field. This "E-field" only exists at a point when there is a point-coulomb of electrical charged mass at the point. The real version of this equation should be  $E = -[(\nabla\phi) \bullet q]/|q|$ , where  $\nabla\phi$  is the potential gradient coupled directly to the charged point-mass at the point,  $q$  is the number of coulombs of charged mass at the point,  $q/|q|$  is one coulomb of charged mass, and  $E$  now is properly the force on and of each coulomb of the collected charged mass at the point.

Viewed in this manner, one can now see that the E field may be altered by flow of additional charged mass  $q$ , or by flow of massless additional  $\nabla\phi$ , or both. This is now in agreement with the manner in which it is approached in CEM, but more rigorous. Essentially it states we may increase the total "charge" (potential) at a point by either (1) moving in additional charged masses by use of a conventional current, or (2) moving in additional massless charge (potential) without any additional change in mass, or (3) a combination of the above.

However, let us apply this to a single charged particle or to a fixed number of them. No one seems to have noticed that the notion of altering the E-field of the collected point-charges at a point via method #2, i.e. by a flow of massless displacement current onto the fundamental charged particles themselves, a priori requires the electrical charge of each fundamental particle to change. Hence it **falsifies the notion of quantization of charge**.

Also, no one seems to have noticed the electric power implications: if it is known that one can charge a capacitor purely by displacement current, then one can charge up the capacitor with energy, without any dissipation of the source, because only charged mass current through the back emf of the source does that. So one can then disconnect the charged capacitor and separately connect it in a closed circuit with a load, to discharge through the load and furnish free work in the load (free in the sense that no dissipation of the primary source occurred in either the collection of the energy or in discharge of the collected energy through the load as useful work). Free energy, overunity electrical devices, etc. should then be readily apparent and permissible, from the known nature of displacement current and capacitors alone.

7. Maxwell assumed a material ether, which was assumed to be a thin material fluid filling all space. Hence force (which must have mass as a component due to its definition  $F = d(mv)/dt$ ) could be modeled as existing in the Maxwellian ether, for there was already thin matter present everywhere. Hence in Maxwell's EM the incorrect notion resulted that force fields existed in the vacuum. Oliver Heaviside continued this erroneous assumption, since in fact he hated the potentials, regarded them as mystical, and stated that they should be "...murdered from the theory." Also, electricity was thought to be a similar thin material fluid. So the material electric fluid could and did flow through the fluid vacuum also, giving the notion of the material electric flux density for  $D$ . Consequently, the units of  $D$  are coulombs (charged mass rate of flow) per square meter. Rigorously, that material  $D$  flux exists only on and of charged mass that moves; it cannot and does not exist in vacuum. Only potentials and potential gradients exist in vacuum. However, after Maxwell's formation of his theory, the Michelson-Morley experiment destroyed the material ether (not the ether per se, but its material nature). So electricians then simply proclaimed that they were no longer using the material ether, and that such did not exist! Not a single Maxwell/Heaviside equation was changed. The material ether is still very much assumed in classical EM (CEM) theory, and so the theory is accordingly very seriously flawed. Since CEM also has no adequate definition for either electric charge or the scalar potential, the problem is confounded.

To clarify this problem, one must separate the notion of electric charge from the notion of mass. The electrical charge of a charged mass is the virtual photon flux exchange between the surrounding vacuum and that mass. Since a virtual photon flux is just a scalar potential, the electron's massless electrical charge is simply its scalar potential. It can now be seen that, if we forcibly remove the notion of "mass" from  $D$  in the vacuum, or in a charged material medium where the charged masses cannot move, then the "material electric flux concept" portion of  $D$  turns into  $d\phi/dt$ , a change in the nonmaterial electric flux. However,  $D$  is a vector and hence has a "net flux" spatial directional aspect which  $d\phi/dt$  alone does not possess. It follows that the value of  $d\phi/dt$  at a spatial point actually represents the result of change of the value of  $\phi$  at that point, as a function of time. Thus a directional operator must first be invoked upon  $\phi$  at the point, to provide a direction for the spatial  $\phi$ -current after the  $d/dt$  operator is invoked. The appropriate operator to give directionality to  $\phi$  is  $\nabla$ , so that  $D$  in vacuum or in an electron-current-free charged medium becomes a function of  $d/dt(-\nabla\phi)$ . Conventionally, the use in the literature of  $E = -\nabla\phi$  immediately provides that  $d/dt(-\nabla\phi)$  at a point results in  $dE/dt$ , or the time rate of change of the E-field at that point. If no distinction is made between charged mass current flow and massless charge current flow, this would be true in either vacuum or material media. However, we wish to specifically distinguish between massive displacement current and massless displacement current. So we point out that the increase  $dE/dt$  in the magnitude of the E-field at, on, and of a charged particle at a point, can be due to either (1) the flow of mass current to build up the number of point coulombs at that given point, where each coulomb has a fixed massless charge (potential), or (2) the flow of massless current  $d/dt(-\nabla\phi)$  so as to alter the value of  $\phi$  at that point, evidenced by a fixed number of coulombs of charged particles, **each of which has altered its individual potential and therefore its individual massless electrical charge.**

So what "flows" when the charged masses are frozen or absent is simply a current of scalar potential, resulting in a change of the potential upon fixed point charges of  $d\phi/dt$ . This is what crosses between the plates of a capacitor, e.g., which is where the notion of "displacement current" originated in the first place. (See, e.g., Halliday and Resnick, 1988, *ibid.*, p. 836, Sample Problem 1, for expression of the displacement current as  $d\phi/dt$ , neglecting constants of proportionality). This is also

what flows when one connects multiple open circuit pairs of conductors to a source.

It remains to examine Maxwell's equation  $\nabla \cdot \mathbf{D} = \rho_v$ . If mass displacement current cannot flow, then there exists no divergence of the mass current portion of  $\mathbf{D}$ . However, massless displacement current can still flow, and there can exist divergence of that component. There are now three aspects to that equation: (1) the case in the vacuum, where there exists no physical  $\rho$  and hence no  $\rho_v$  as such because of the absence of mass, (2) the case in a material medium, which is the normal case already treated in the standard equation and need not be further addressed, and (3) the case in a material medium where, nonetheless, physical charged masses such as electrons cannot move, but massless charge currents may still move. Only cases 1 and 3 need to be addressed, and they have the same treatment.

We address the one dimensional case, which is sufficient for circuit current flow considerations. First we replace  $\mathbf{D}$  with  $(\mathbf{D}\phi + \mathbf{D}\rho)$ , where the first term is the massless displacement current and the second term is the massive displacement current. In other words, we account separately for charged mass flow and for massless charge flow. Similarly, we express  $\rho_v$  as two components, one massive and one massless, so that  $\rho_v = d/dl(\phi + m_v)$ . For case 1 and case 3 we make  $m_v = 0$  and  $\mathbf{D}\rho = 0$ . For those cases, we have  $\nabla \cdot \mathbf{D} = \nabla \cdot \mathbf{D}\phi = d\phi/dl$  (since current along a wire is a one-dimensional flow). We specifically note that  $\phi$ ,  $\mathbf{D}\phi$ ,  $\nabla \cdot \mathbf{D}\phi$ , and  $d\phi/dl$  are not necessarily conserved quantities, since  $\phi$  is mathematically decomposed into bidirectional EM waves, and is hence a freely flowing process. When symmetry is broken so that equilibrium conditions no longer exist, one or more of these quantities will not be locally conserved.

What has actually been done here is to open the classical EM model to the free exchange of massless EM energy that is always ongoing between any charged particle's mass and the vacuum. We then account separately for the flow of the energy exchange (of the massless charge flow) and the flow of the physical receiver/transmitters (i.e., for charged mass flow). Our switching arrangement to separate the collection and discharge cycles constitutes a permissible "Maxwell's Demon" which breaks symmetry, hence breaks equilibrium and opens the system as required. Since such a system can continually receive a free influx of energy from its external source, such a system can permissibly exhibit overunity operational efficiency without violating the laws of physics.

8. Displacement current is already known to be lossless transport of energy without entropy, i.e., without work. For a typical confirmation see Jed Z. Buchwald, From Maxwell to Microphysics, University of Chicago Press, Chicago and London, p. 44 (1985). Quoting: "...no energy transformation into heat occurs for displacement currents."
9. We strongly stress again that the scalar potential may be mathematically decomposed into a harmonic series of hidden bidirectional EM wave pairs. Each wave pair consists of an ordinary EM wave together with its superposed phase conjugate replica wave. Thus internally the scalar potential gradient across a source represents a bidirectional exchange of EM wave energy with the surrounding vacuum. See notes 13, 14, 15, and 16 below for references confirming the decomposition of the "fixed" potential into a dynamic flow process and energy exchange process.
10. For confirmation see Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, pp. 283-287 (1963). See particularly p. 283, which emphasizes that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. See p. 17 on the limitations of

a "natural law"; p. 213 and 215 for limitation of thermodynamic analysis to equilibrium states; and see p. 216 for definition of entropy. See p. 217 for the fact that the entropy for non-equilibrium conditions cannot be computed, and the entropy of a system not in equilibrium must be less than the entropy of the system in equilibrium, i.e., for a system to depart from equilibrium conditions, its entropy must decrease. Therefore its energy must increase. Thus the energy of an open system not in equilibrium must always be greater than the energy of the same system when it is closed and in equilibrium, since the equilibrium state is the state of maximum entropy.

11. Lindsay and Margenau, *ibid.*, p. 217.
12. The basic notion in the perpetual motion conundrum is that somehow a closed system in thermodynamic equilibrium could perpetually provide external energy to a load outside the system. Such a notion is an oxymoron; if the system is closed, no energy can escape or enter, hence the system could not furnish energy externally to power a load or even just to radiate away. My associates and I have not in any manner proposed such a system or entertained the notion that such might exist. But it is well-known that open systems not in thermodynamic equilibrium can freely extract energy from their environment and furnish energy to power a load, and that is precisely what we have proposed.
13. G. J. Stoney, "XLVIII. On a Supposed Proof of a Theorem in Wave-motion, To the Editors of the Philosophical Magazine," *Philosophical Magazine*, 5(43), pp. 368-373 (1897).
14. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, vol. 57, pp. 333-355 (1903). Whittaker mathematically decomposes the scalar potential into a bidirectional series of EM wave pairs in a harmonic sequence. Each wave pair consists of the wave and its phase conjugate. (We have pointed out elsewhere that such a wave pair is a standing electrogravitational wave and a standing wave in the curvature of local space-time). To see that all classical EM can be replaced by interference of two such scalar potentials (i.e., by the interference of their hidden multi-wave sets), see E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proceedings of the London Mathematical Society*, Series 2, vol. 1, pp. 367-372 (1904).
15. Richard W. Ziolkowski, "Localized Transmission of Electromagnetic Energy," *Physical Review A*, 39, p. 2005 (1989). For related material, see Richard W. Ziolkowski, "Exact Solutions of the Wave Equation With Complex Source Locations," *Journal of Mathematical Physics*, 26, pp. 861-863 (1985). See also Michael K. Tippet and Richard Ziolkowski, "A Bidirectional Wave Transformation of the Cold Plasma Equations," *Journal of Mathematical Physics*, 32(2), pp. 488-492 (1991).
16. C. W. Hsue, "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," *IEEE Microwave and Guided Wave Letters*, 3, pp. 82-84 (1993).
17. H. E. Puthoff, "Source of Vacuum Electromagnetic Zero-point Energy," *Physical Review A*, 40(9), pp. 4857-4862 (1989). Presents Puthoff's self-regenerating cosmological feedback cycle for the source of the vacuum EM zero-point energy.

Our comment: Over any macroscopic range, the vacuum fluctuations ( $\nabla\Phi$ 's) of the ZPE sum to a vector zero translational resultant. The individual ZPE components ( $\nabla\Phi$ 's), however, are still present and active, and their energies are present as well. That vector zero can thus be considered to be a gradient-free potential, or the vacuum potential, since it contains enormously dense, trapped EM energy. So the vacuum potential -- pure space-time (ST) itself -- contains enormously dense EM energy.

One can then apply the Stoney/Whittaker/Ziolkowski (SWZ) methodology to decompose this powerful vacuum potential, i.e., the vacuum, and in fact space-time (ST) itself, into an incredibly dense flux of EM energy. Space-time is revealed to be an incredibly powerful electrostatic scalar potential. The electrical charge (potential) of a charged particle is a small potential gradient in the ST potential, i.e., it is a slight alteration of the local ST potential. Via Puthoff's self-regenerative feedback cycle, the energy flowing in this potential is being exchanged between the local source and all the charges everywhere in the universe. This "potential gradient" or electrical charge itself can be decomposed via the SWZ approach, and becomes a bidirectional EM wave pair exchange of excess EM energy between the vacuum/ST and the charged particle's mass. The potential gradient between the ends of a dipole have similar decompositions, with the additional characteristic that the negatively charged end of the dipole receives the forward-time waves from the SWZ wave pairs, and the positively charged end receives the time-reversed waves.

Our final comment is that Cole and Puthoff have rigorously shown that, in theory, the vacuum EM energy can indeed be extracted. See Daniel C. Cole, and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," *Physical Review E*, 48(2), pp. 1562-1565 (1993).

18. T. W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), pp. 23-41 (1991). Barrett shows that a higher topology EM model (e.g., EM expressed in quaternions) allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. As an example, one may meet optical functioning without the presence of optical materials.

## LEGEND:

● = filled black dot (like scalar product) in original text  
 $\emptyset$  = Greek letter  $\emptyset$  for the Scalar Electrostatic Potential field  
 $\nabla$  = Greek letter Nabla (upside down triangle)  
 $|x|$  = Absolute value of x (only positive)  
 uf = microFarad

**PRACTICAL OVERUNITY ELECTRICAL DEVICES**

(C) T.E. Bearden  
 May 13, 1994

**Introduction**

Recently, my associates and I have filed a patent application on what we believe will at long last reveal the mechanisms for practical overunity electrical devices. It is my purpose in this paper to provide additional information augmenting my former two papers, (1) "The Final Secret of Free Energy," Feb. 1993, and (2) "Additional Information on the Final Secret of Free Energy," Feb. 1994. In this present paper, with the permission of my colleagues, I release the gist of our work on separation of electrical charge into two coupled components  $\emptyset \bullet (m)$ , where  $\emptyset \bullet$  represents the massless charge of the charged particle or mass,  $\bullet$  represents the fact that it is coupled or trying to couple to the special mass that makes up charged particles [i.e., the special kind of mass that will couple to the virtual photon flux density that is represented by the symbol  $\emptyset$ ], and  $m$  represents the inert mass component of the charged mass. Since not all masses will couple with  $\emptyset \bullet$ , we indicate the type of mass that will couple with it, as  $\bullet m$ . Thus a charged mass is composed of  $(\emptyset \bullet) \bullet (\bullet m)$ , which we consolidate to  $(\emptyset) \bullet (m)$ .

**Charge Is Not Quantized**

An interesting immediate result is that the massless charge of a fundamental charged particle is not quantized; it changes as a function of the background potential in which it is embedded. So it is discretized as a function of the background potential (i.e., of the virtual photon flux exchange between it and the surrounding vacuum). Otherwise, e.g., there could be no  $\nabla \emptyset$  created on any charged particle  $q$ , and hence no E-field, and hence electrons would not move in our present circuits. Since they do move in our circuits, charge is not quantized.

**Electrical Current Has Two Components**

The first key to understanding free energy electrical and magnetic machines is to realize that electrical current actually consists of two currents coupled together. Our treatment of an electric charge as a coupled system  $(\emptyset) \bullet (m)$  also means that electron current  $i = dq/dt$  is comprised of two coupled components  $[(d\emptyset/dt) \bullet (dm/dt)]$ . This follows from simply invoking the operator  $d/dt$ ; i. e.,  $d/dt[(\emptyset) \bullet (m)] = (d\emptyset/dt) \bullet (dm/dt)$ , which is the same as  $[(d\emptyset/dt) \bullet] \bullet (\bullet dm/dt)$ . The component  $(d\emptyset/dt) \bullet$  is the known but not well understood massless displacement current, while the component  $\bullet (dm/dt)$  is the mass displacement current, and the coupling operator  $\bullet$  means "coupled to" or "trying to couple to". The coupling operator represents a real physical operation: the exchange of virtual photons between the vacuum potential and the charged mass. Any potential  $\emptyset_1 \bullet$  is considered to be a potential that is superposed upon the ambient vacuum potential  $\emptyset_0 \bullet$ , to provide a potential  $(\emptyset_0 + \emptyset_1) \bullet$ . The ambient vacuum potential does not disappear merely because we add another potential to it!

**Confusion In Present Electrical Physics**

We point out that, in physics books of note, the overt coupling effect is essentially unknown or ignored because physics presently has not defined either the scalar potential or the electrical charge. The conventional theory simply uses an "inert" expression  $d\emptyset/dt$  to represent the displacement current (and another inert expression  $q$  for a charged mass), and most theoreticians are uncomfortable even with that. The displacement current is also confused with force by equating the displacement current  $d\emptyset/dt$  to  $dE/dt$ . In turn, this means that  $d\emptyset/dt$  is confused with mass, hence with  $dm/dt$ , which latter is also a component of  $dq/dt$ .  $m$  is always an \internal component\ of force, as is known in foundations of physics but this fact continues to remain completely oblivious to the electricians. [Good electrical theorists do admit that there is no force in the vacuum; and that the force associated with the E-field is evidenced

only in the interacting mass. However, they continue to maintain the E-field (force per point-coulomb of charged mass) in the vacuum, when there are no point-coulombs of charged mass there!

### Mass Is an Internal Component of Force

It is easy to show that mass is always a component of force: We will simply define *force* precisely. We first insist that no equation can be used as a definition; an equation simply states that the magnitude of one of its sides and the magnitude of the other side are equal. (The length of a board and the length of a human may be equal, but writing that as an equation has absolutely nothing to do with the definition of either a board or a human). So we will insist that any true definition must be an *identity*.

We define force  $F$  as  $F \equiv d/dt(mv)$ , whereupon mass is a component of force *a priori*. It follows that, if we define the E-field  $E$  as the force per coulomb, we are defining it as the force existing at a point and having a point-coulomb of charged mass as one of its major components. We may accurately now define  $E$  as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ , where the absolute value symbol in the denominator is essential,  $q/|q|$  being one point-coulomb. [We leave as an exercise for the reader the further reduction of this definition by treating  $q$  as  $\bullet(\Phi \bullet m)$ ].

At any rate, with the new and correct definition of the E-field, one can see that the flow of displacement current ( $d\Phi/dt$ ) upon a collector such as a rigid capacitor, containing a fixed charge  $\bullet(\Phi \bullet m)$ , will result in the formation of an excess  $\nabla \Phi \bullet$  upon those restrained charges in the capacitor plate, so that there is created an  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ . Since the conventional theory considers the antigradient of the potential as an E-field, then one can now see the exact mechanism that creates this E-field that grows upon the capacitor (across its plates) as it charges. In fact, the  $q/|q|$  cannot change in a capacitor if its plates and dielectric are immovable. Instead, in that case, the  $\Phi \bullet$  portion of the trapped  $\bullet(q)$  changes, producing the  $(\nabla \Phi) \bullet$  change. Since the  $(\nabla \Phi) \bullet$  component is coupled to the mass component of the fixed  $\bullet q$  as  $(\Phi + \nabla \Phi) \bullet m$ , then an E-field is created and exists as  $E \equiv -[(\nabla \Phi) \bullet (q)]/|q|$ .

### An Ideal Capacitor Is an Electron Current Blocker

We point out that, if the capacitor's components are ideal, *completely rigid*, and do not physically move, then the capacitor is a " $\bullet dm/dt$  blocker." If the charges really were frozen in place, then the potential would flow across the plates at the speed of light, via the flow of excess massless displacement current  $d\Phi/dt \bullet$ . In that case, an ammeter would not show the classical "exponential fall-off" of the current with time; the electron current  $dq/dt$  would occur as a single-point Dirac delta function at  $t=0$ , and would be zero thereafter. And no electrons would be able to move in zero time. The voltage would show an instantaneous adjustment to the charged value with a single step-function, and the capacitor would charge up fully, instantly, with no work (energy loss) whatsoever being done. And this charge-up of the capacitor would not dissipate in the slightest the source furnishing the voltage; there would be no electron current  $dq/dt$  through the back EMF of the source, hence no work inside it to deplete its separation of charges.

### Problems With Ordinary Capacitors

However, most ordinary capacitors are much more than just an ideal capacitor. The plates move, the dielectric moves, etc. due to the forces created upon them by the E-fields created upon the trapped charges in them. The spatial translation of the resulting force moving the plates constitutes work; i.e., it dissipates some of the flowing  $d\Phi/dt$  energy. Each movement of the plates and/or dielectric carries with it all its internally trapped charges. The movement of those charges constitutes a substantial longitudinal electron current  $dq/dt$ , when compared to the longitudinal "drift" electron current in normal circuits. [Electrons spend most of their time moving radially in a wire, not down it.] This "moving plate and its transported charges" make an electron current, which pumps the inert electrons in the ground return line back through the back EMF of the source, depleting the source. Consequently, the ordinary capacitor will simply release as much energy as work (to move the plates and dielectric) as it stored. Hence, it will also produce dissipation of the source via the amount of energy stored in the capacitor. You still get "free energy" stored in the capacitor, but also dissipate the source by an equal amount.

### Rigidized Capacitors Must Be Used

Only rigidized capacitive collectors are useful in free energy devices. Such capacitors are in fact actually available, e.g., as calibration standards, but they are extremely expensive (\$400 to \$2,000 or so each, for a capacitance reaching about 1 uf).

So, capacitive type collectors must be rigidized, if used in overunity circuitry. Even so, in a single integrated circuit, although one collects free energy, one will use half of what was collected to dissipate the source. Not all the remaining half will be discharged

through the load; some will be discharged in other circuit and component losses. Hence, there will always be less work done in the load than is done in the source to kill it, by a conventional two wire single closed circuit. In my second referenced paper (Feb.94), I included precise proof that this is true. One must use energy collection and shuttling between two isolated circuits, and the load discharge current must not pass back through the primary source of potential.

We have previously provided precisely how to utilize capacitive collectors in our two referenced papers. We point out here that the capacitors must be calibration standard capacitors, or specially made rigidized capacitors.

### **It Does Not Require Electron Current to Charge An Ideal Capacitor**

For the benefit of the skeptic, this is already proven. We simply list references (2) and point out the equation that represents the energy  $K$  in a charged capacitor. Here we have  $K = \frac{1}{2}(CV)^2$ . It is totally the displacement current  $d\Phi/dt$  flowing (from a higher potential) onto the charging plate that produces the higher potential  $\Phi$  on that charging plate, and hence a  $V$  between the two plates, one of them (the "ground" side) being held at a constant potential. The mass displacement current component  $dm/dt$  of the electron current  $dq/dt$  has nothing whatsoever to do with energy accumulation; it has only to do with the dissipation of energy that is happening simultaneously in all losses and loads in the circuit loop.

We reiterate that most ordinary capacitors have terrible internal movement, and accomplish as much energy dissipation as they do energy collection by permitting  $dq/dt$  and work performed upon the plates and dielectric to move them. The standard two-wire circuit also guarantees that all such  $dq/dt$  current "through" the capacitor is passed back through the source against its back EMF, doing an equal amount of work in the source to dissipate its separation of charges and "destroy" the source.

An ideal capacitor does not pass  $dq/dt$ , but only massless displacement current as theorized by Maxwell to save current continuity in a circuit containing a capacitor, and hence to save Ampere's current law. That is, an ideal capacitor is a  $dm/dt$  blocking device. However, the capacitors utilized in normal circuits are not ideal capacitors at all. By allowing the plates to move, electron current  $dq/dt$  is created on both sides of the capacitor. Otherwise there would not be a ground return  $dq/dt$ , but only a ground return  $d\Phi/dt$ . This  $d\Phi/dt$  would not and does not push electrons back up through the source against its back EMF; else the ground side of the source, which is engaged in continuous  $d\Phi/dt$  exchanges with the vacuum, would produce destructive amperage  $d\Phi/dt$  in the battery or potentialized source, against its back EMF, while it was simply sitting on the shelf. In fact, a flow of  $d\Phi/dt$  continually runs from the vacuum to the positive terminal, then through the inside of the battery to the negative terminal, and thence back to the surrounding vacuum. Also, the incoming flow from the vacuum "splits" at the positive terminal, where one branch flows inside the source to the negative terminal, and the other branch flows through the external circuit to the ground return line, and thence to negative terminal and back to the vacuum. In the external circuit, the  $d\Phi/dt$  hooks to free electrons and moves them as ordinary  $dq/dt$ . In the internal circuit inside the source, the electrons are restrained, hence they only move when their restraint is overcome.

### **Displacement Current $d\Phi/dt$ Is Real**

In recent years, SQUID detectors have been utilized to detect the magnetic field created between the plates (at right angles) by the displacement current  $d\Phi/dt$  between the plates, providing strong evidence that displacement current is physically real. The best proof that it is real is a charge blocking device, two isolated circuits using energy collection and shuttling, and overunity powering of loads in the secondary circuit.

### **A Problem With Ammeters and Measurement of $d\Phi/dt$**

Note that an ammeter cannot differentiate between displacement current  $d\Phi/dt$  and normal current  $dq/dt$ . In the ammeter, the sample  $d\Phi/dt$  will couple to free electrons, producing a normal  $dq/dt$  inside the ammeter. The driving of this  $dq/dt$  through a precision resistance, e.g., is measured and the instrument is calibrated to show the  $dq/dt$  amperes flowing. One of the major needs of free energy researchers is the development of a good current meter that will differentiate between  $d\Phi/dt$  and  $dq/dt$ , and measure each one. Short of using a mass spectrometer to differentiate the mass current  $dm/dt$ , and comparison of those mass current measurements with an ammeter's measurements of the "current"  $dq/dt$ , and calculating the  $d\Phi/dt$  from that, I presently know of no way to precisely and simply measure and separate the two current components. I have been thinking of utilizing a multi-channel sampling meter set arrangement, where one channel uses a  $dm/dt$  blocking device such as the Fogal semiconductor in this respect, but have not yet developed the complete concept.

### **Better Solution: A Charge Blocking Device**



A better solution than the capacitor or capacitive collector is the use of a special rigid solid state "charge blocking device", such as a Fogal semiconductor, to enable the current separation into two components, blocking of the mass flow component, and passage of the massless displacement current component. *In overunity electrical devices, it is massless displacement current  $d\phi/dt$  that must be separately passed down the primary circuit and collected in the collector as an E-field or an H-field. This provides "free" energy that has been extracted from the vacuum, via the potential difference between the terminals of the source antenna, and collected and stored in the appropriate field, without work.* The collected free energy may then be transferred to the isolated load circuit by a variety of means, for separate discharge through the load without return of  $dq/dt$  through the source.

### The Fogal Semiconductor Meets the Charge-Blocking Requirements

Fogal's marvelous semiconductor blocks passage of electrons into its output terminal, but passes displacement current  $d\phi/dt$  into it. The semiconductor is powered by (receives) normal electron current and excess  $d\phi/dt$ , but outputs pure massless displacement current  $d\phi/dt$ . A charge blocker that passes  $d\phi/dt$  is ideal for our overunity mechanisms, enabling them to be readily obtained as we shall shortly see.

### Energy, Flow, Finite Amount of Energy, and Collectors

We accent that the flow of energy in an electrical circuit is purely by means of the massless displacement current component ( $d\phi/dt$ ). The flow of the mass component  $\bullet(dm/dt)$  represents the "flow of work" (*energy dissipation*) in the circuit. Power is rigorously the time rate of doing work, and electron current  $dq/dt$  is a part of power. It has nothing whatsoever to do with the time rate at which *energy is transported without loss*; instead, power represents the rate at which energy "leaks" or is "lost" during its transport.

All measurement is work, not energy. Energy cannot be measured, even in theory, a priori. Energy is also a flow process, and never a finite amount in one location. A specific differential of energy flow may exist on a specific finite collector. However, it only represents a certain constant differential amount of energy flow compared to the universal vacuum energy flow or some other flow reference point. It is like a whirlpool in the river. Energy is like the flowing water, and an "amount" of energy is like the amount of water in the collecting whirlpool form (between its input flow and its output flow) at any time. Obviously, energy (ordering) forms can come and go; the water flow itself remains. Any "magnitude of energy" is always a "trapped" amount of energy in a "collector" (form).

### Decoupling Current Components and Utilizing $d\phi/dt$

The two components of electron current  $dq/dt$  can be decoupled, by blocking the  $\bullet dm/dt$  component while allowing the  $d\phi/dt$  displacement current to continue to flow. In our first paper, we pointed out one way: utilizing a special degenerate semiconductor material whose electron gas relaxation time is extended, providing a finite time during which the material serves as a *charge (i.e., a charged particle) blocking device*, while passing the flow of potential (the  $d\phi/dt$  massless displacement current component) and restraining the mass displacement current component  $\bullet dm/dt$ . With the advent of Fogal's semiconductor, the process becomes much easier to obtain and utilize in practical machines and circuits.

In our second paper, we pointed out a second way: utilize an ordinary capacitor and ramp-up step-charging. We found, however, that in most ordinary capacitors, the capacitive aspect is defeated by the sloppy movement of the plates and dielectric, converting  $d\phi/dt$  into  $dq/dt$ . Only a few very carefully selected capacitors are sufficiently rigid and can provide overunity. One must use *rigidized* calibration standard capacitors for the ramp-charging by series steps method to be successful. With ordinary capacitors, however, one can readily demonstrate that the efficiency can approach 1.0 rather than 0.50 as expected.

### Overunity Secrets: Charge Blocking, Collection, Shuttling, and Two Isolated Circuits

The charge (actually *charged mass*) blocking approach provides a massless, free flow of vacuum EM energy that can be directed to a collector (capacitive or inductive) where it can be stored in either an E-field or a B-field. This stored energy can then be transferred to an isolated load circuit whose electrons (and hence their  $\bullet dm/dt$  mass displacement current) are free to flow as  $dq/dt$ . In the isolated load circuit, then, the two components  $[(d\phi/dt)\bullet(dm/dt)]$  again couple to form  $i = dq/dt = [(d\phi/dt)\bullet(dm/dt)]$ , powering the load. All work in an electrical circuit is due to the mass displacement current  $\bullet dm/dt$  component; the massless displacement current ( $d\phi/dt$ ) is a flow of pure energy transport without loss, as is well-known. (For example, see Reference 4.)

Therefore, the first major free energy secret is simply to block the "working" component  $\bullet dm/dt$  of the current  $dq/dt$  while allowing the excess "lossless energy flow" component  $d\phi/dt$  to flow to collectors to produce either free E-field or free B-field thereupon.

The second major secret is to transfer the collected excess free energy (via energy shuttling) to a second, isolated, load circuit, where the energy is discharged through the load in the conventional fashion (i.e., such that the two current components are coupled, and electron current  $i = dq/dt$  occurs through the load). The second circuit must be isolated from the original collection circuit, so that none of the load electron current  $dq/dt$  passes back through the original source, against its back EMF.

Should the grounds be the same between the load circuit and the collection circuit so that load electron current is returned through the back EMF of the primary source, then exactly as much excess work will be done inside the source to dissipate its separation of charges as was done in the external load to furnish useful work and in the external losses. In that case, overunity is destroyed, because one is using one-half the excess free energy to destroy the source faster, while the remaining half is distributed among all external loads and losses. Since there are always some external losses besides the load, then the ratio of load power to source dissipation power is always less than unity in a conventional closed-loop circuit containing both load and source. Hence the necessity for utilizing two isolated circuits: one where energy is collected freely from the source, and one where energy is dissipated as work in the load without dissipative work in the source, and energy shuttling between them.

### A Simple Open-Loop Overunity Device

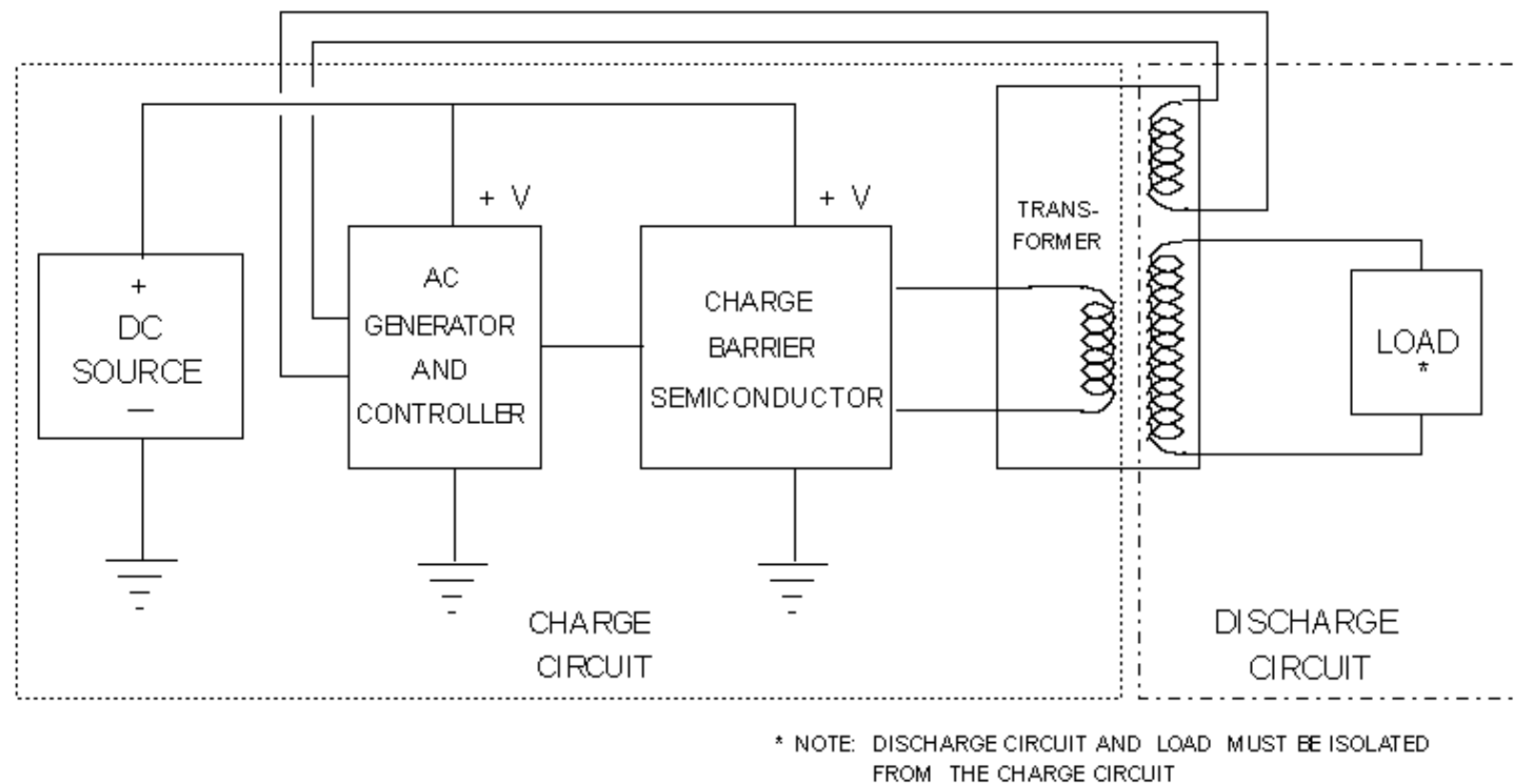


Figure 1. Use of Charge Barrier Device to Achieve Overunity in a Shuttle Circuit.

Figure 1 shows a very simple but very powerfully amplified overunity device, using an AC charge blocking semiconductor (CBS) (such as a Fogal semiconductor). The gist of the circuit is that an AC source furnishes AC current  $dq/dt$  to the CBS, which uses some of the power to power itself, but then blocks the  $dm/dt$  portion of the  $dq/dt$  input current, passing only the massless displacement current component ( $d\phi/dt$ ) into its output circuit. The ( $d\phi/dt$ ) output of the CBS is fed through the primary winding of a transformer, in this case a step-up transformer. The "current gain" of the CBS will depend upon (1) the load connected to it, and (2) the ability of the CBS to continue to block the increasing E-field on its trapped charges, as more free energy flow ( $d\phi/dt$ ) is drawn through it by the load. Thus the load and the CBS must be matched within the operational ability of the CBS, so that the CBS does not fail catastrophically.

In the primary winding of the transformer, the ( $d\phi/dt$ ) displacement current produces a magnetic field  $H$ , storing the excess flowing

energy in that field. This is a normal magnetic field; all magnetic fields are produced by the  $(d\Phi/dt)$  component of the current anyway. This magnetic field, as it changes, couples to the secondary winding, producing a normal magnetic field  $H$  therein by normal means. In the secondary circuit, electrons are not restrained by a CBS. Hence the  $(d\Phi/dt)$  induced in the circuit on the secondary side couples to the unrestrained electrons, producing normal electron current  $dq/dt$ , and driving it through the load to power it. Note that energy is conserved across the primary and the secondary; however, dissipative power and work (energy loss rate and energy loss) are not conserved, because a free flow of lossless excess energy in the form of displacement current is flowing from the vacuum through the source antenna, thence to the CBS, through it to the primary of the transformer and into the primary magnetic field, through it to the secondary magnetic field, through it into the  $(d\Phi/dt)$  induced in the secondary circuit and coupled to the electrons, through the resulting  $dq/dt$  into the load, where the scattering of photons as heat dissipates the free flowing energy in the displacement current  $d\Phi/dt$  component flowing through the load as a component of  $dq/dt = (d\Phi/dt) \bullet (dm/dt) = (d\Phi/dt) \bullet (dm/dt)$ .

### Free "Power" Amplification

If one places an ammeter in the output from the CBS, between it and the primary winding of the step-up transformer, one will read the  $(d\Phi/dt)$  as *normal  $dq/dt$  in the ammeter itself*. If one calculates the "free power" (i.e., the rate of energy dissipation) that is going into the transformer primary using this as the "current," one will show that energy and "power" are conserved between primary and secondary of the transformer. However, the actual dissipative power going into the primary side is zero or, in real circuits, vanishingly small. Consequently, the device has a very high variable power gain that depends upon the rate of energy draw and dissipation of the load on the secondary side. If one adds more load, one draws more  $dq/dt$  current on the secondary side, hence more excess  $d\Phi/dt$  displacement current on the primary side. The overall "power amplification" is limited by the ability of the transformer to handle the power in the secondary and the ability of the CBS to withstand the pressure of the internal charge barrier. This device can be easily "close-looped."

### The Negative Resistor: A Close-Looped "CBS and Shuttle" System

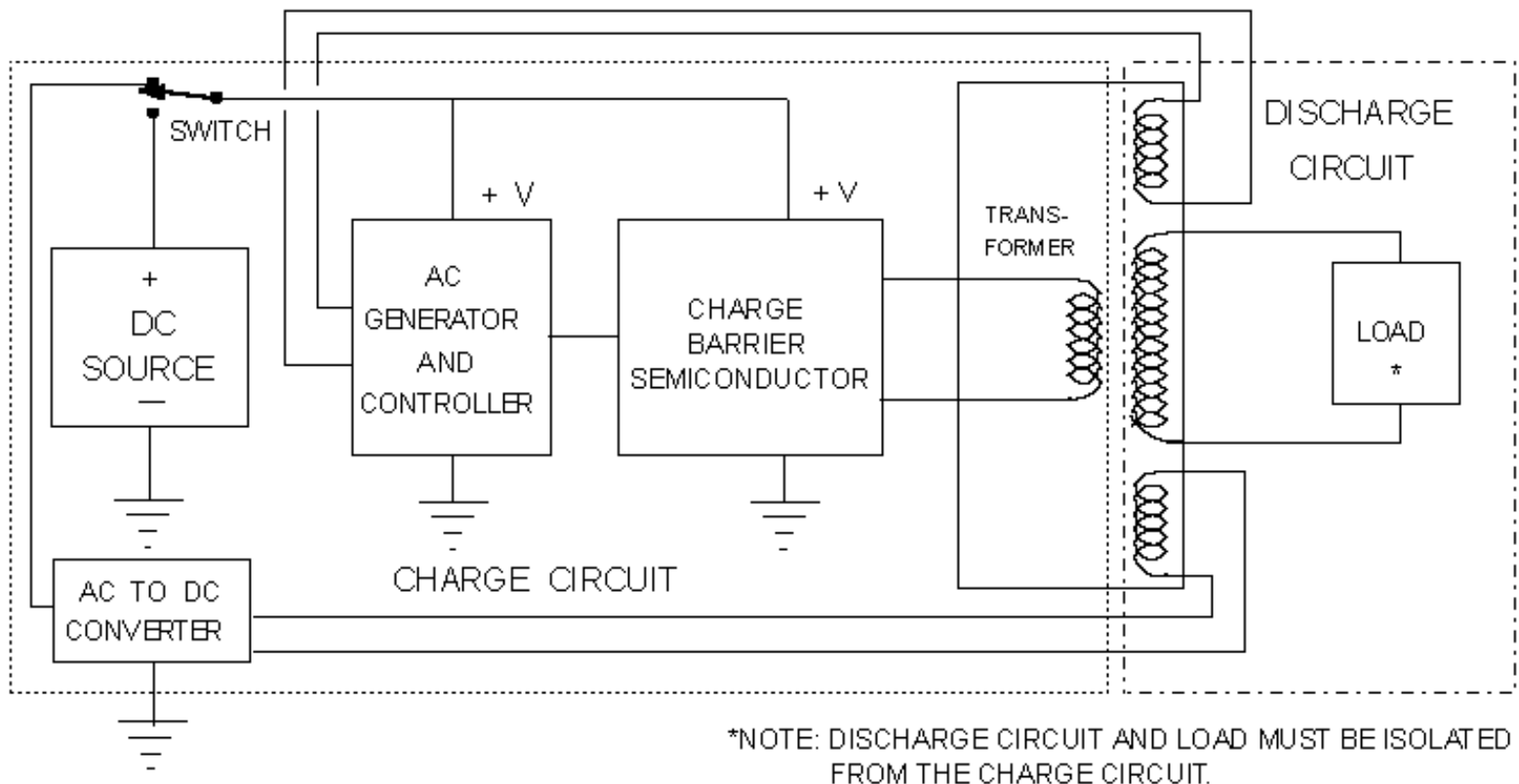


Figure 2. Use of Charge Barrier Device in a Shuttle Circuit With Controlled Feedback, to Achieve a True Negative Resistor.

Figure 2 shows the close-looping of the device shown in Figure 1, in such manner that, once stable operation is underway and the load and input stabilized, the ordinary power supply for the CBS can be switched out of the circuit. In this case, the circuit operates as a self-powered overunity device; i.e., as a *negative resistor*.

A normal resistor receives an ordered energy flow from its external circuit and scatters this energy as work out to the vacuum. I.e., it receives  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$  (scatters the excess  $(\nabla\Phi)/dt \bullet$  component (i.e., of the  $dq/dt$  passing into it from the high potential side) by radiating it away to the surrounding vacuum as scattered photons (heat)), and outputs inert (no excess  $(\nabla\Phi) \bullet$  component) electron current  $dq/dt$  into the ground side.

A negative resistor does exactly the opposite: it accepts inert incoming electrons from its "ground" side, also accepts incoming (converging)  $d\Phi/dt \bullet$  energy from the vacuum as virtual photons being absorbed upon these inert electrons so that a  $\nabla\Phi \bullet$  is added to the electron current, creating an excited, excess energy-carrying  $i = (\Phi + \nabla\Phi)/dt \bullet (dm/dt)$ , and passes this excited current out of its high side and out into the external circuit to power the circuit. In other words, the negative resistor becomes a *self-contained free power source*, once brought up to stable operation.

In Figure 1, all that needs to be done is simply to extract some of the secondary power and feed it back to create the power input consumed by the CBS and the other normal components of the primary circuit side of the transformer.

Multitaps can be added to the secondary side, to provide varying voltage power supplies for loads requiring different voltages.

Energy is conserved in the device, because it always functions as an open circuit, receiving excess energy from an external source (the surrounding vacuum, in its virtual photon exchange with the charges in the system). It is far from thermodynamic equilibrium, and classical thermodynamics (including the second law) does not apply.

It is simply a continuous free power supply: it is a *negative resistor*.

Far more complicated units can be designed and produced. The basic point is that this type of overunity power supply is continuous and self-powered, driven by the violent exchange of energy from the vacuum, and simply collecting and gating some of that energy to the load to power the load.

## Conclusion

With this third paper, we complete the triad of papers we set out to write a little over a year ago. With the availability of charge barrier devices such as the Fogal semiconductor, together with the collection, shuttling, and use of free  $d\Phi/dt \bullet$  flowing energy, the *Age of Free, Clean, Electrical Energy* has finally dawned.

Let us use it wisely, and for the betterment of humankind, not for its destruction.

[Support of portions of this research by A.D.A.S. is gratefully acknowledged.]

## References and Notes

1. Bearden, T.E., Feb. 9, 1993, "The Final Secret of Free Energy," ADAS, distributed over Internet. The paper was also published in *Magnets*, 7(5), May 1993, p.4-26, in *Explore!*, 4(3/4), 1993, p.112-126, and in several other media. See also Bearden, T.E., "Additional Information on the Final Secret of Free Energy," Feb. 15, 1994, distributed on Internet.
2. For proof that an ordinary capacitor can be charged almost without entropy, see Fundaun, I., C. Reese, and H.H. Soonpaa, "Charging a Capacitor," *American Journal of Physics*, 60(11), Nov. 1992, p.1047-1048. See also Calkin, M.G. and D. Kiang, "Entropy change and reversibility," *American Journal of Physics*, 51(1), Jan. 1983, p.78-79. See also Heinrich, F., "Entropy change when charging a capacitor: A demonstration experiment," *American Journal of Physics*, 54(8), Aug. 1986, p.742-744. See also Gupta, V.K., Gauri Shanker, and N.K. Sharma, "Reversibility and step processes: An experiment for the undergraduate laboratory," *American Journal of Physics*, 52(10), Oct. 1984, p.945-947.
3. In most texts, the treatment of displacement current is far from adequate. A better treatment than most is given by Krauss, John D., *Electromagnetics*, Fourth Edition, McGraw-Hill, New York, p.437-439, 547-549. This treatment must still be augmented by treatment from other texts, and the ensemble "synthesized." Even then, it will never be completely clear until the separation of mass from the massless charge, and separate accounting of the two, is accomplished in the manner pointed out by the present paper.

4. For a typical confirmation that massless displacement current is already known to be lossless transport of energy without entropy, i.e., without work, see Buchwald, Jed Z., From Maxwell to Microphysics, University of Chicago Press, Chicago and London, 1985, p.44. Quoting: "...no energy transformation into heat occurs for displacement currents." It should be obvious from this fact alone that the proper way to accomplish overunity in electrical devices is to utilize the massless displacement current to flow and store excess energy, then use a "heat pump" type cycle to transfer the collected energy to a separate load circuit and discharge it separately in the load.
5. For a very recent proof that the potential is a flow process, and in fact consists of bidirectional EM waves, see Hsue, C.W., "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless, Nonuniform Transmission Line," IEEE Microwave and Guided Wave Letters, 1993, Vol. 3, p.82-84.
6. For proof that the vacuum EM zero-point energy is continually produced by a cosmological feedback from every charged particle in the universe, see Puthoff, H.E. , "Source of Vacuum Electromagnetic Zero-point Energy," Physical Review A, 40 (9), Nov. 1, 1989, p.4857-4862.
7. For proof that in theory the vacuum energy can be tapped, see Cole, daniel C. and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," Physical Review E, Vol. 48, No. 2, Aug. 1993, p.1562-1565.
8. For proof that a higher topology examination of EM phenomena allows energy collection as potentials and energy shuttling in circuits, see Barrett, T.W., Annales de la Fondation Louis de Broglie, Vol.16, No. 1, 1991, p.23-41. Barrett shows that EM expressed in quaternions allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. He in fact shows that Tesla's patented circuits did exactly this.
9. Stoney, G.J. (1897) "XLVII. On a Supposed Proof of a Theorem in Wave Motion, To the Editors of the Philosophical Magazine," Philosophical Magazine, 5(43), 1897, p.368-373. Stoney first pointed out the bidirectional EM wave decomposition of the scalar potential.
10. Whittaker, E.T., "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, 1903, p.333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol.1, 1904, p.367-372.

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from **STAR WARS NOW!**

The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization

by [Lt. Col. T.E. Bearden \(retd.\)](#), 1984

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### A Sensitive Scalar Wave Detector

Very briefly we present a method of making a very sensitive scalar wave detector so that direct measurement and quantization can be established.

First, we regard one oscillation (one wavelength) of the scalar potential wave as a longitudinal photon. Note that this photon contains a substructure, which may be deliberately determined (when artificially made) or randomized (when naturally made in the idealized case).

For convenience we represent normal linearized vacuum (spacetime) as a horizontal or longitudinal vector (Figure 4), implying the direction of motion of the wave in the laboratory frame. By horizontal position in our diagram, we imply a linear, uncurved spacetime and a non-rotated frame. We represent the longitudinal scalar wave as a horizontal vector, and the usual Hertzian wave as a vertical or "transverse" vector. We visualize a normal detector as detecting only a vertical or "transverse" vector, as we have illustrated in Figure 4.

As can be seen, in a linear, unrotated or uncurved spacetime a pure scalar wave has no vertical component projected upon the laboratory frame vector, so it is not detectable by normal detectors.

To detect the scalar wave, of course we could bend it so that it has a projected vertical component in the laboratory frame (Figure 5). However, this would be an impure wave, not a pure scalar wave, and that is not what we wish.

A better way is to bend or curve spacetime itself in a small region, so that a longitudinal wave that passes through that region now possesses a vertical component with respect to that region (Figure 6). Thus a normal detector there will detect that vertical component. We conduct the detection current out of the "bent spacetime" region to an outside (normal) detector, and we then have a scalar wave detector.

To illustrate, we show conceptually how this has been successfully done. Figure 7 shows the concept. First, we utilize a magnetic pole to provide the infolded energy (potential) to bend or curve spacetime. To reach good sensitivity, we need a pole strength connected with a magnetic field strength of 40,000 Gauss or higher. We utilize a small superconducting magnet, which can reach field strengths of from 40,000 to 80,000 Gauss.

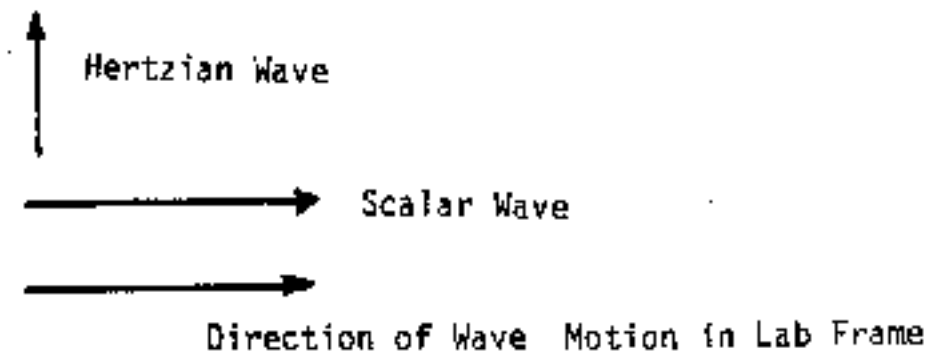


Figure 4. Linear, uncurved laboratory frame.

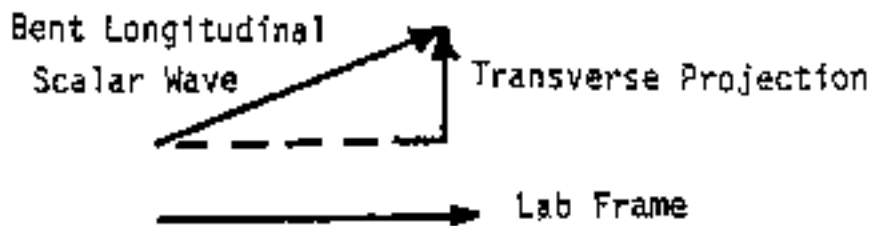


Figure 5. Rotating the longitudinal wave produces a transverse component.

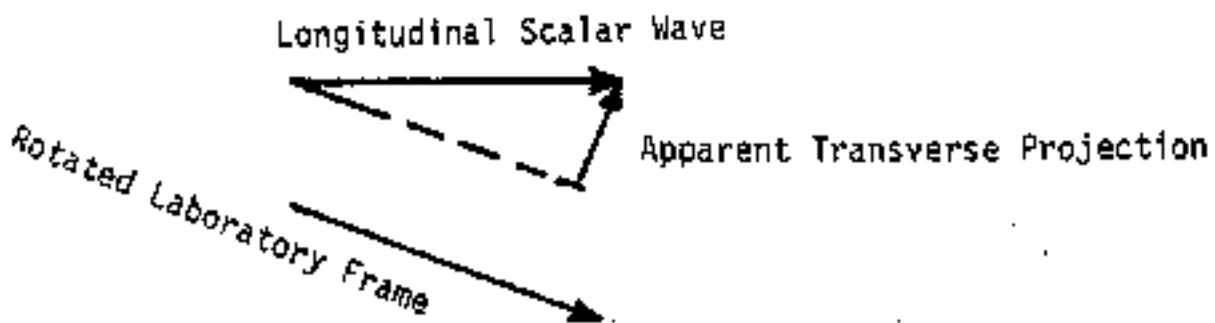


Figure 6. Bending the laboratory spacetime frame produces a transverse component.

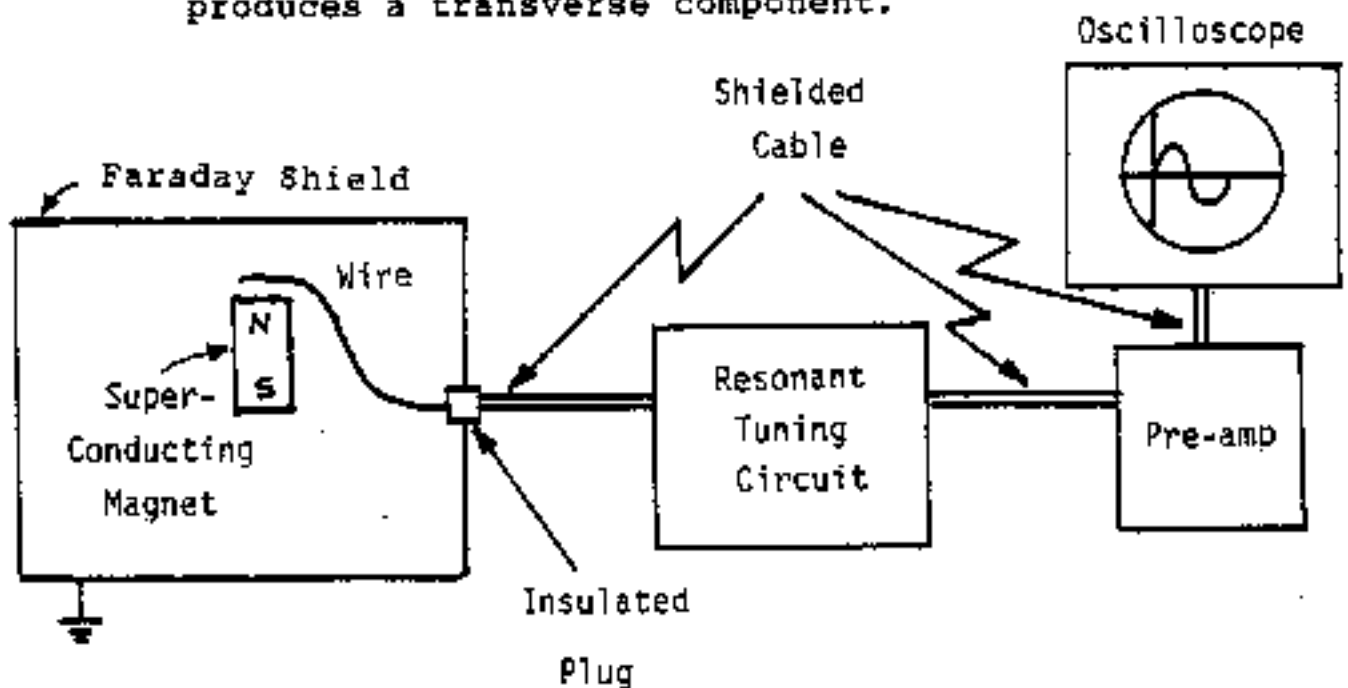
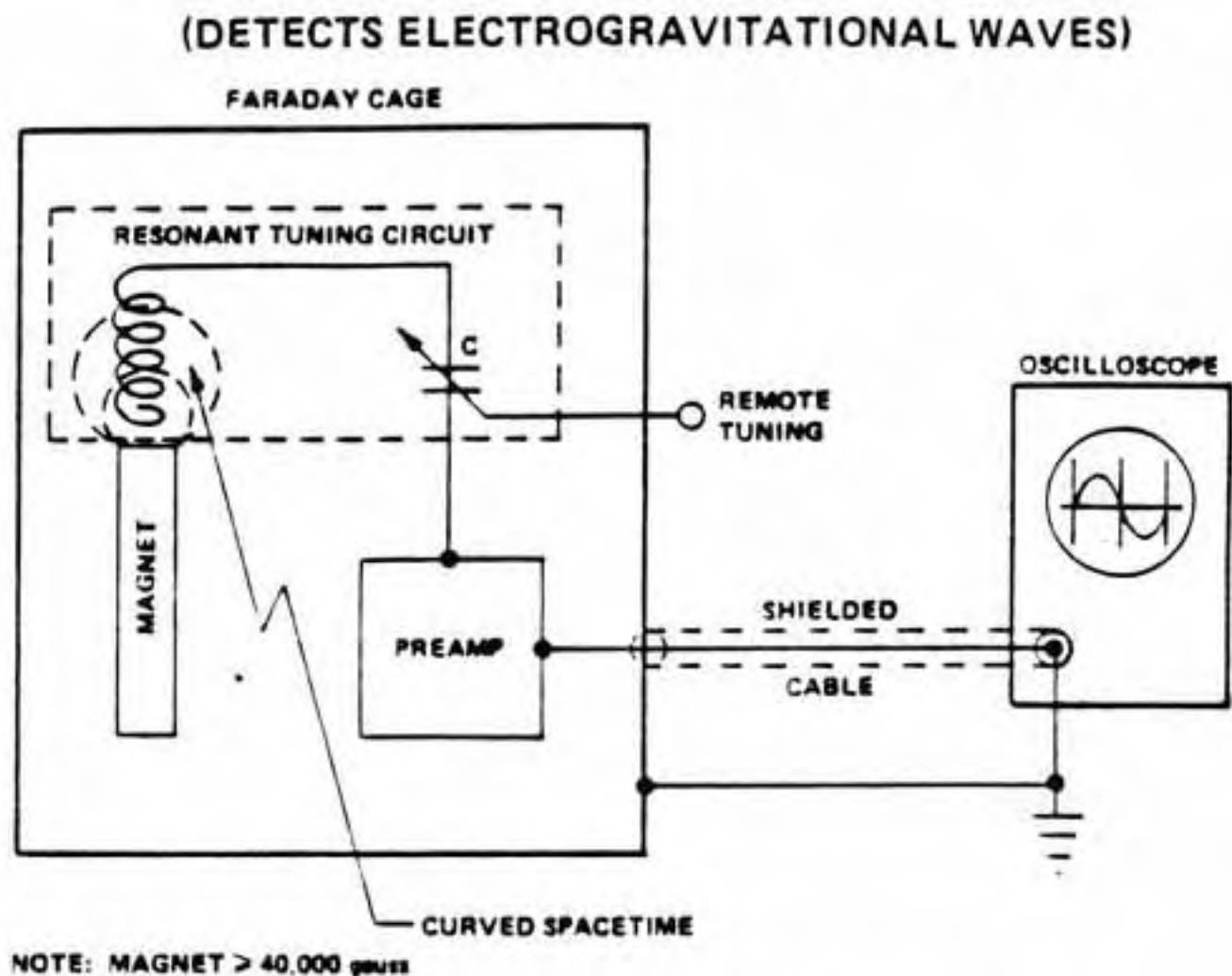


Figure 7. A sensitive scalar wave detector.



Figure 7. A sensitive scalar wave detector.



**\*BEDINI VERSION OF DEA/FARETTO DETECTOR**

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Then to prevent detection of superfluous "normal" radiation, we shield the entire magnet in a grounded Faraday cage, as shown in the figure. Hertzian waves will be grounded in this shield, while scalar waves will readily penetrate it undiminished. In other words, the Faraday cage serves as a "stripper," to strip away the ordinary waves, leaving only the scalar waves to penetrate inside. An ordinary wire lies at the top of the magnetic pole, in proximity to it. The wire runs out of the Faraday cage through an insulated port to a resonant tuning circuit, which is sharply tunable over the range of frequencies we are interested in. A preamp amplifies the output of the tuner, and in turn feeds the input of an oscilloscope or other detector.

With this detector we can select the frequency desired, and detect any passing scalar waves of that frequency. By other variations of amps and preamps, regenerative circuits, etc. we can obtain all the

sensitivity desired, and utilize ordinary detection equipment already well-known and highly developed.

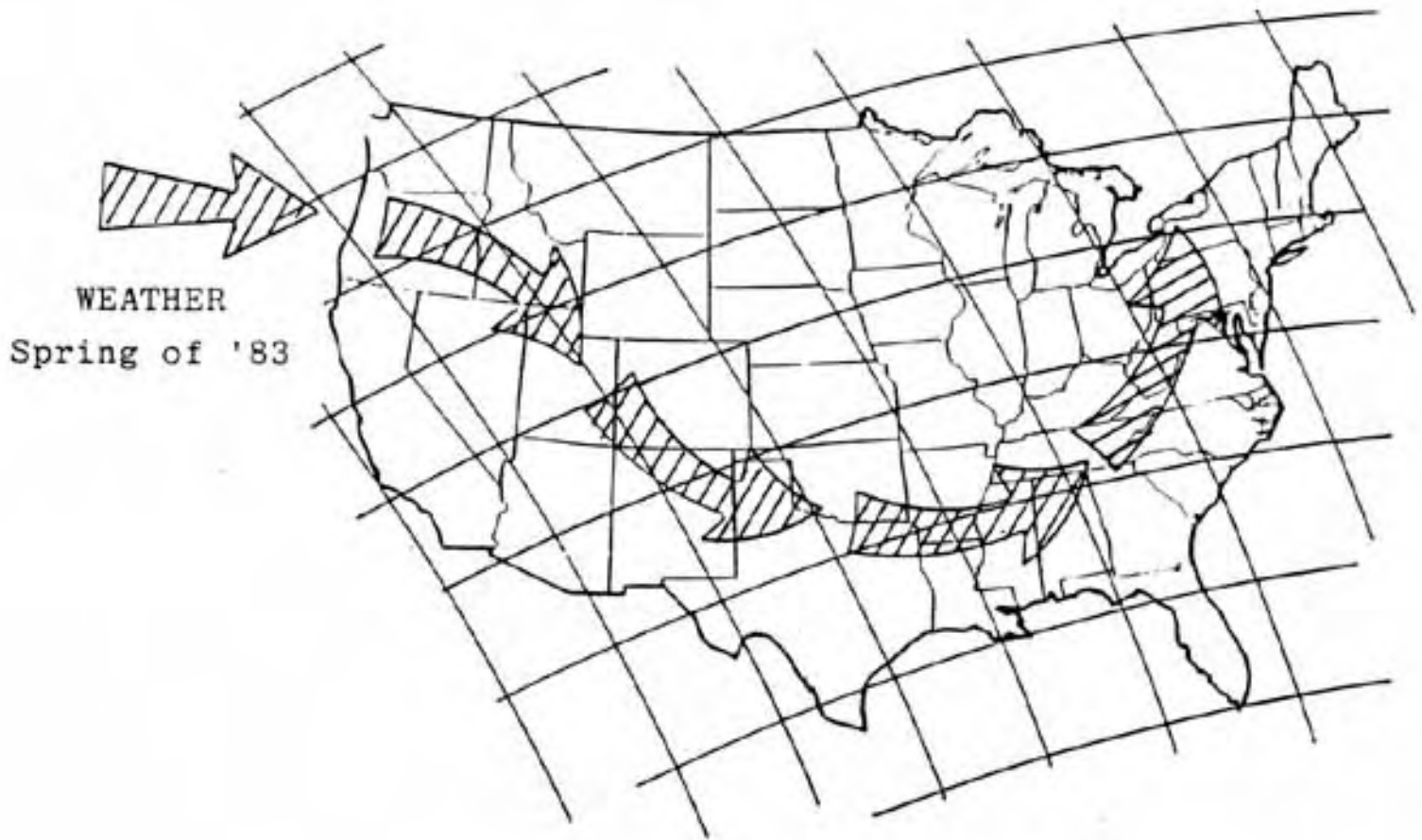
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### **[Additional Information about detecting Scalar Waves](#)**

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**Figure 11. NETWORK OF VIRTUAL TRANSMITTERS**  
[\(See Woodpecker Grid\)](#)

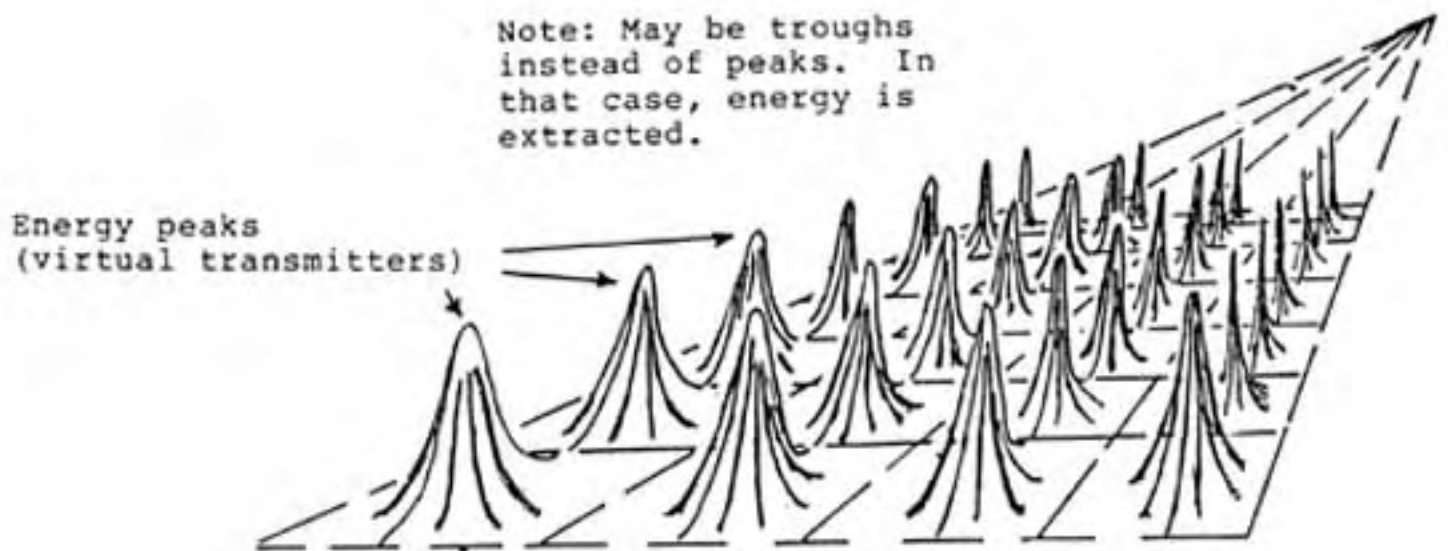
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**Figure 12. VIRTUAL TRANSMITTERS IN THE INTERFERENCE GRID**

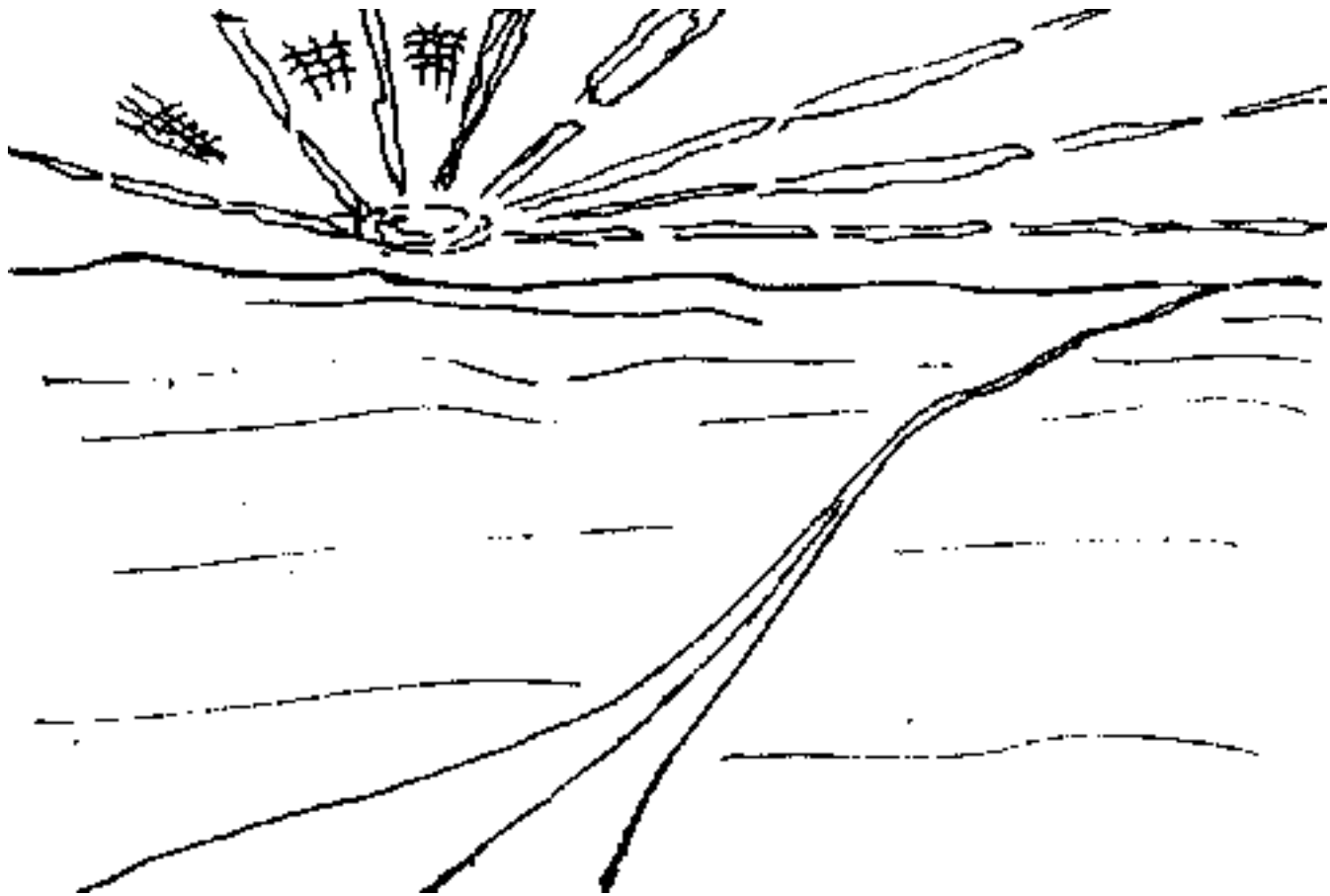


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**Figure 13. GIANT RADIAL RELATED TO A VIRTUAL TRANSMITTER**



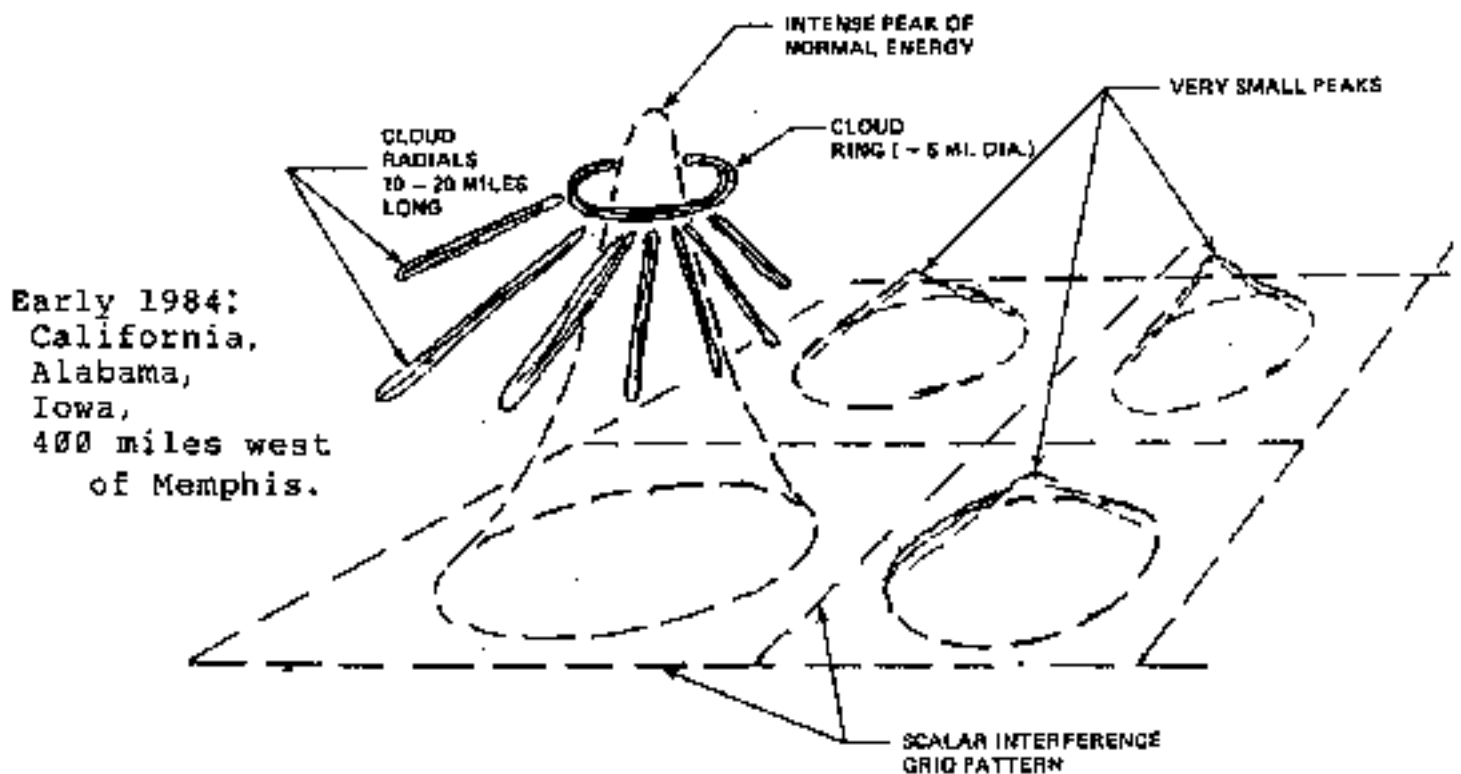
Fall 1983:  
Florida  
Alabama

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**Figure 14. FORMATION OF A SINGLE GIANT RADIAL**



Excerpt P 172

**FER DE LANCE**

A Briefing on Soviet Scalar Electromagnetic Weapons

by Lt. Col. T.E. Bearden (retd.), 1986

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2. Continual cloud radials have repeatedly been seen and photographed over Huntsville, Alabama, associated with weather engineering and grid activity. Typical radials seen by this author are shown in Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, 1985. Huntsville is apparently a pivot point or "hinge point" for bending and controlling the jetstream.

3. Spectacular cloud grid patterns have been seen over Huntsville, Alabama and Los Angeles, California. An excellent videoclip of one of the Los Angeles area grids, personally observed and shot by KABC Open Mind talk show host Bill Jenkins, is shown in Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, 1985. An artist's sketch of an earlier gigantic grid, extending from horizon to horizon in every direction, seen over Huntsville, Alabama by Tom Bearden and Ken Moore, is also shown in the tape. The videotape is available from P.O. Box 1472, Huntsville, AL 35807. Sketches and details of another highly anomalous grid pattern observed in the greater Los Angeles area by engineer Ron Cole are shown in figures 5 and 6.

The reason that clouds of water droplets and/or ice particles detect the scalar interferometry and form signature patterns is simple: Consider each H<sub>2</sub>O molecule as having two light little hydrogen atoms hanging on to the much heavier oxygen atom. The covalent sharing with the oxygen atom of the electron from each hydrogen atom means that

1. the electrostatic scalar potential between the H ion and the O ion it is bonded to, is rhythmically varying as the electron is shared back and forth,
2. this varying potential contains "electron spin holes" since it is made by the moving electron,
3. two such varying potentials exist since there are two H atoms sharing covalent electrons with the O atom,
4. the two H ions are at an angle of over 100 degrees with respect to each other,
5. the molecule assembly thus constitutes one part (one half, so to speak) of a scalar interferometer with imbedded electron spin holes for electron hooking,
6. Incident scalar waves from outside the system interact with the "half scalar interferometer." This scalar interferometry interaction is coupled to the covalent bonding electron because of the internal spin hole pattern of the molecular half of the interferometer. The coupled electron moves with the scalar pattern's changes, causing an observable interaction with and in the electrical structure and ionic potential of the molecule,
7. the weak H to H hydrogen bonding between molecules connects resulting ionic potential changes to the structuring of the entire macroscopic cloud assembly. Thus by scalar interferometry with the H<sub>2</sub>O "half interferometers", an incident scalar EM pattern is detected and translated into patterns of E and B force fields. The H<sub>2</sub>O molecules then "line up" in accord with the electrical patterns detected.

Thus the clouds form "signature patterns" according to the incident scalar EM radiation patterns. Giant cloud radials in the targeted area are probably due to the type and shape of antennas including the type and shape of the electrical wires establishing the antennas' ground planes -- used by the Soviet Union to project the scalar waves. Note that such "radial" antenna patterns were occasionally used by James Harris Rogers in his underground and undersea scalar EM transmission system.

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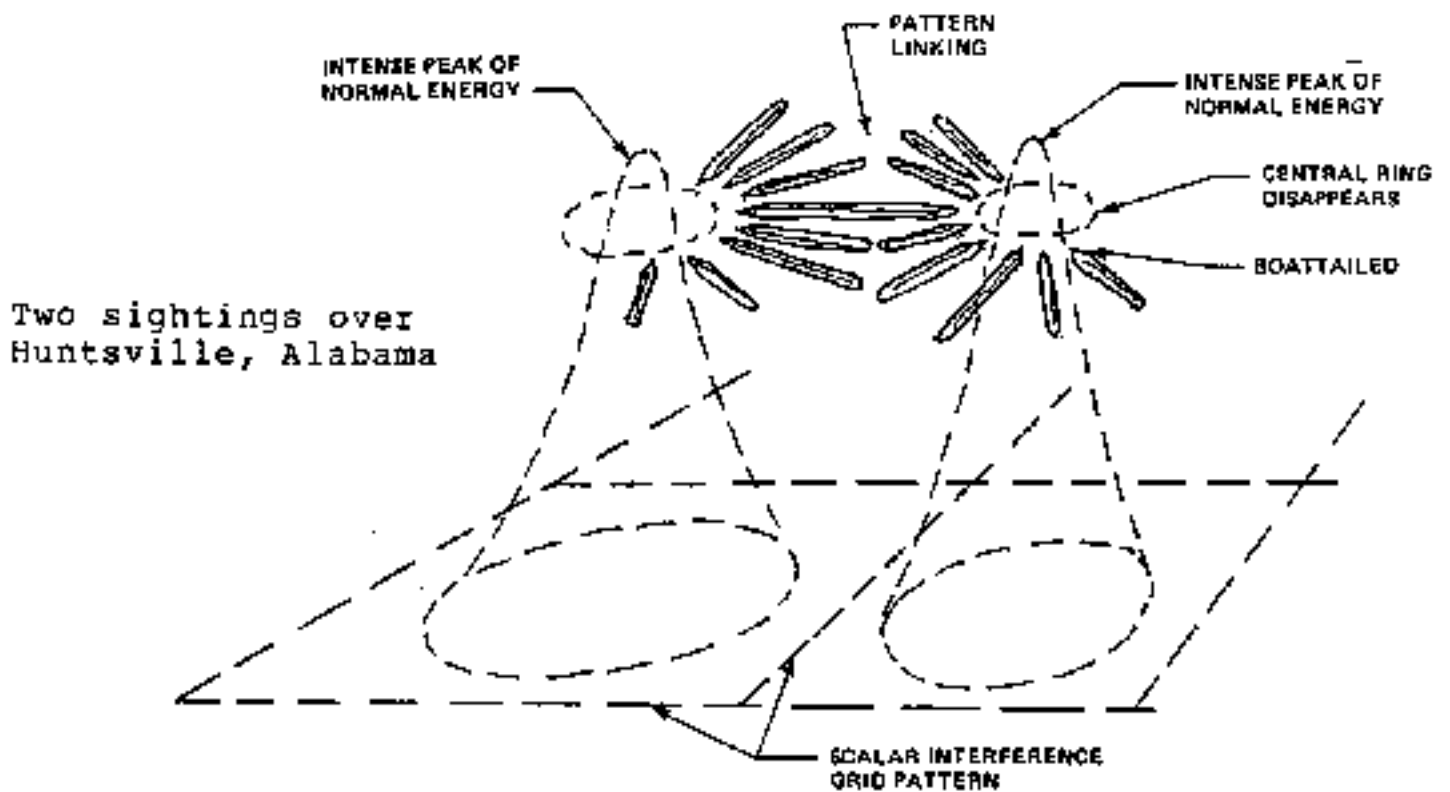
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**Figure 15. FORMATION OF A DOUBLE GIANT RADIAL**

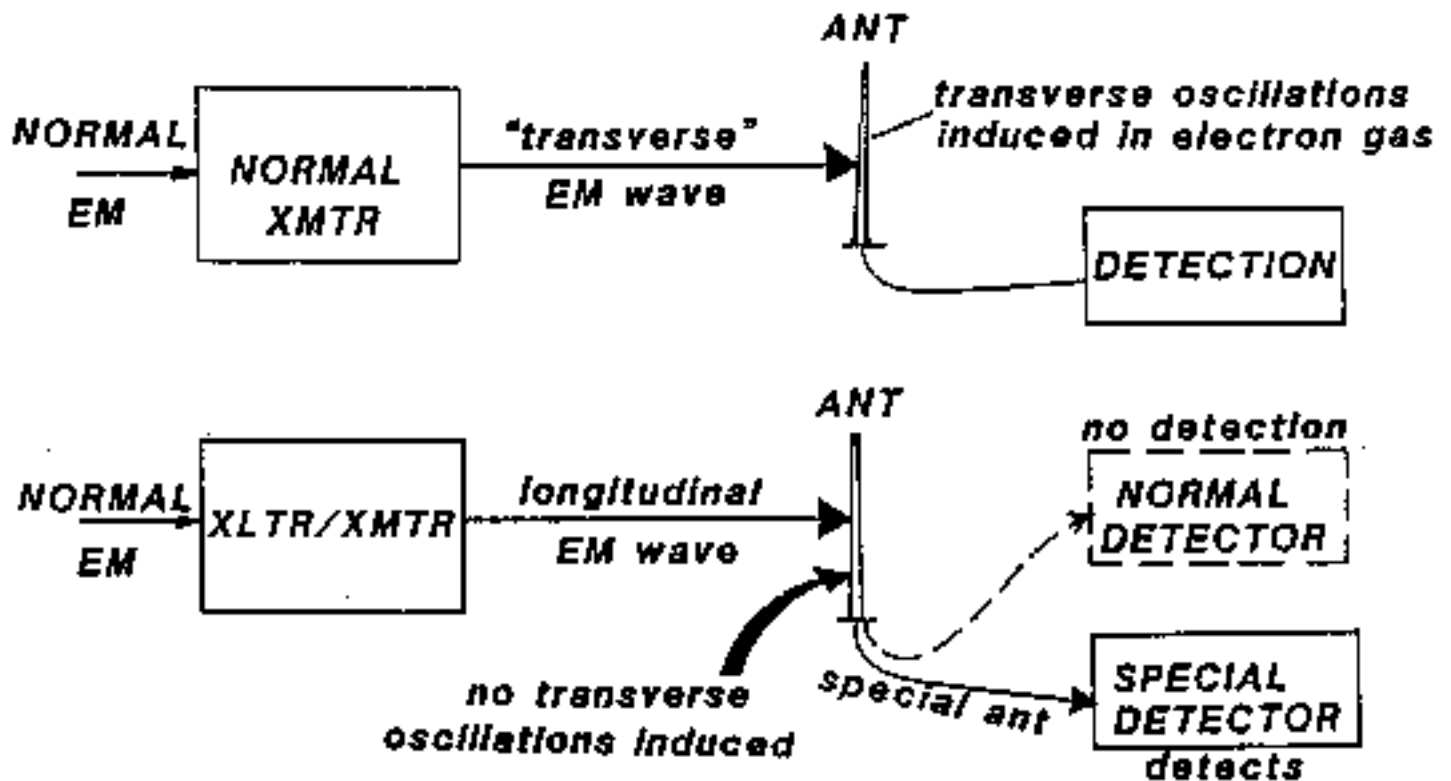


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**Figure 16. DETECTION OF TRANSVERSE AND LONGITUDINAL WAVES**



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## The New Tesla Electromagnetics and the Secrets of Electrical Free Energy

By T.E. Bearden

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## **COMMENTS ON THE NEW TESLA ELECTROMAGNETICS**

### **Part I: Discrepancies in Present EM Theory**

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There are at least twenty-two major discrepancies presently existing in conventional electromagnetics theory. This paper presents a summary of those flaws, and is a further commentary on my discussion of scalar longitudinal Tesla waves in a previous paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1981 and 1982.

I particularly wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. One of the two is an experimental genius who can produce items on the bench that do not work by orthodox theory. The second is a master of materials science and electromagnetics theory. I thank them both for their exceptional contributions and stimuli regarding potential shortcomings in present electromagnetics theory, and their forbearance with the many discussions we have held on this and related subjects.

It goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

(1) In present electromagnetics theory, charge and charged mass are falsely made identical. Actually, on a charged particle, the "charge" is the flux of virtual particles on the "bare particle" of observable mass. The charged particle is thus a "system" of true massless charge coupled to a bare chargeless mass. The observable "mass" is static, three-dimensional, and totally spatial. "Charge" is dynamic, four-dimensional or more, virtual and spatiotemporal. Further, the charge and observable mass can be decoupled, contrary to present theory. Decoupled charge -- that is, the absence of mass -- is simply what we presently refer to as "vacuum." Vacuum, spacetime, and massless charge are all identical. Rigorously, we should utilize any of these three as an "ether," as suggested for vacuum by Einstein himself (see

Max Born, Einstein's Theory of Relativity, Revised Edition, Dover Publications, New York, 1965, p. 224). And all three of them are identically anenergy -- not energy, but more fundamental components of energy.

(2) Electrostatic potential is regarded as a purely 3-dimensional spatial stress. Instead, it is the intensity of a many-dimensional (at least four-dimensional) virtual flux and a stress on all four dimensions of spacetime. This is easily seen, once one recognizes that spacetime is identically massless charge. (It is not "filled" with charge; rather, it is charge!) Just as, in a gas under pressure, the accumulation of additional gas further stresses the gas, the accumulation of charge (spacetime) stresses charge (spacetime). Further, if freed from its attachment to mass, charge can flow exclusively in time, exclusively in space, or in any combination of the two. Tesla waves -- which are scalar waves in pure massless charge flux itself -- thus can exhibit extraordinary characteristics that ordinary vector waves do not possess. And Tesla waves have extra dimensional degrees of freedom in which to move, as compared to vector waves. Indeed, one way to visualize a Tesla scalar wave is to regard it as a pure oscillation of time itself.

(3) Voltage and potential are often confused in the electrostatic case, or at least thought of as "composed of the same thing." For that reason, voltage is regarded as "potential drop". This also is not true. Rigorously, the potential is the intensity of the virtual particle flux at a single point -- whether or not there is any mass at the point -- and both the pressure and the point itself are spatiotemporal (4-dimensional), not spatial (3-dimensional) as presently assumed. Voltage represents the spatial intersection of the difference in the potential between two separated spatial points, and always implies at least a miniscule flow of mass current (that is what makes it spatial!). "Voltage" is spatial and depends upon the presence of observable mass flow, while scalar electrostatic potential is spatiotemporal and depends upon the absence of observable mass flow. The two are not even of the same dimensionality.

(4) The charge of vacuum spacetime is assumed to be zero, when in fact it is a very high value. Vacuum has no mass, but it has great massless charge and virtual particle charge flux. For proof that a charged vacuum is the seat of something in motion, see G.M. Graham and D.G. Lahoz, "Observation of static electromagnetic angular momentum in vacuo," Nature, Vol. 285, 15 May 1980, pp. 154-155. In fact, vacuum IS charge, identically, and it is also "spacetime" and at least four-dimensional.

(5) Contrary to its present usage, zero is dimensional and relative in its context. A three-dimensional spatial hole, for example, exists in time. If we model time as a dimension, then the spatial hole has one dimension in 4-space. So a spatial absence is a spatiotemporal presence. In the vacuum 4-space, a spatial nothing is still a something. The "virtual" concept and the mathematical concept of a derivative are simply two present ways of unconsciously addressing this fundamental problem of the dimensional relativity of zero.

(6) The concepts of "space" and "time" imply that spacetime (vacuum) has been separated into two parts. We can only think of a space as "continuing to exist in time " To separate vacuum spacetime into two pieces, an operation is continually required. The operator that accomplishes this splitting operation is the photon interaction, the interaction of vector electromagnetic energy or waves with mass. I have already strongly pointed out this effect and presented a "raindrop model" of first-order physical change itself in my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 128-130.

(7) "Vector magnetic potential" is assumed to be always an aspect of (and connected to) the magnetic field. In fact it is a separate, fundamental field of nature and it can be entirely disconnected from the magnetic field. See Richard P. Feynman et al, The Feynman Lectures on Physics, Addison-Wesley Publishing Co., New York, 1964, Vol. II, pp. 15-8 to 15-14. Curiously, this fact has been proven for years' yet it has been almost completely ignored in the West. The "Vx" operator, when applied to the A-field, makes B-field. If the Vx operator is not applied, the "freed" A-field possesses much-expanded characteristics from those presently allowed in the "bound" theory. Specifically, it becomes a scalar or "shadow vector" field; it is not a normal vector field. (note: for V read inverted capital Delta)

(8) The speed of light in vacuum is assumed to be a fundamental constant of nature. Instead it is a function of the intensity of the massless charge flux (that is, of the magnitude of the electrostatic potential) of the vacuum in which it moves. (Indeed, since vacuum and massless charge are one and the same, one may say that the speed of light is a function of the intensity of the spatiotemporal vacuum!). The higher the flux intensity (charge) of the vacuum, the faster the speed of light in it. This is an observed fact and already shown by hardcore measurements. For example, distinct differences actually exist in the speed of light in vacuo, when measured on the surface of the earth as compared to measurements in space away from planetary masses. In a vacuum on the surface of the earth, light moves significantly faster. For a discussion and the statistics, see B. N. Belyaev, "On Random Fluctuations of the Velocity of Light in Vacuum," Soviet Physics

Journal, No. 11, Nov. 1980, pp. 37-42 (original in Russian; translation by Plenum Publishing Corporation.) The Russians have used this knowledge for over two decades in their strategic psychotronics (energetics) program; yet hardly a single U.S. scientist is aware of the measured variation of  $c$  in vacuo. In fact, most Western scientists simply cannot believe it when it is pointed out to them!

(9) Energy is considered fundamental and equivalent to work. In fact, energy arises from vector processes, and it can be disassembled into more fundamental (anenergy) scalar components, since the vectors can. These scalar components individually can be moved to a distant location without expending work, since one is not moving force vectors. There the scalar components can be joined and reassembled into vectors to provide "free energy" appearing at a distance, with no loss in between the initial and distant points. For proof that a vector field can be replaced by (and considered to be composed of) two scalar fields, see E. T. Whittaker, Proceedings of the London Mathematical Society, Volume 1, 1903, p. 367. By extension, any vector wave can be replaced by two coupled scalar waves.

(10) The classical Poynting vector predicts no longitudinal wave of energy from a time-varying, electrically charged source, In fact, an exact solution of the problem does allow this longitudinal wave. See T. D. Keech and J. F. Corum, "A New Derivation for the Field of a Time-Varying Charge in Einstein's Theory," International Journal of Theoretical Physics, Vol. 20, No. 1, 1981, pp. 63-68 for the proof.

(11) The present concepts of vector and scalar are severely limited, and do not permit the explicit consideration of the internal, finer-grained structures of a vector or a scalar. That is, a fundamental problem exists with the basic assumptions in the vector mathematics itself. The "space" of a vector field, for example, does not have inter-nested sublevels (subspaces) containing finer "shadow vectors" or "virtual vectors," Yet particle physics has already discovered that electrical reality is built that way. Thus one should actually use a "hypernumber" theory after the manner of Charles Musés. A scalar is filled with (and composed of) nested levels of other "spaces" containing vectors, where these sum to "zero" in the ordinary observable frame without an observable vector resultant. In Musés' mathematics, for example, zero has real roots. Real physical devices can be -- and have been -constructed in accordance with Muses' theory. For an introduction to Musés' profound hypernumbers approach, see Charles Musés' foreword to Jerome Rothstein, Communication Organization and Science, The Falcon's Wing Press, Indian Hills, Colorado, 1958. See also Charles Musés, "Applied Hypernumbers: Computational Concepts," Applied Mathematics and

Computation, Vol. 3, 1976. See also Charles Musés, "Hypernumbers II," Applied Mathematics and Computation, January 1978.

(12) With the expanded Tesla electromagnetics, a new conservation of energy law is required. Let us recapitulate for a moment. The oldest law called for the conservation of mass. The present law calls for the conservation of "mass and energy", but not each separately. If mass is regarded as simply another aspect of energy, then the present law calls for the conservation of energy. However, this assumes that energy is a basic, fundamental concept. Since the energy concept is tied to work and the movement of vector forces, it implicitly assumes "vector movement" to be a "most fundamental" and irreducible concept. But as we pointed out, Whittaker showed that vectors can always be further broken down into more fundamental coupled scalar components. Further, Tesla discovered that these "coupled components" of "energy" can be individually separated, transmitted, processed, rejoined, etc. This directly implies that energy per se need not be conserved. The new law therefore calls for the conservation of anenergy, the components of energy. These components may be coupled into energy, and the energy may be further compacted into mass. It is the sum total of the (anenergy) components -- coupled and uncoupled -- that is conserved, not the matter or the energy per se. Further, this conservation of anenergy is not spatial; rather, it is spatiotemporal in a spacetime of at least four or more dimensions.

(13) Relativity is presently regarded as a theory or statement about fundamental physical reality. In fact, it is only a statement about FIRST ORDER reality -- the reality that emerges from the vector interaction of electromagnetic energy with matter. When we break down the vectors into scalars (shadow vectors or hypervectors), we immediately enter a vastly different, far more fundamental reality. In this reality superluminal velocity, multiple universes, travel back and forth in time, higher dimensions, variation of all "fundamental constants" of nature, materialization and dematerialization, and violation of the "conservation of energy" are all involved. Even our present Aristotlean logic -- fitted to the photon interaction by vector light as the fundamental observation mechanism -- is incapable of describing or modeling this more fundamental reality. Using scalar waves and scalar interactions as much subtler, far less limited observation/detection mechanisms, we must have a new "superrelativity" to describe the expanded electromagnetic reality uncovered by Nikola Tesla.

(14) "Charge" is assumed to be quantized, in addition to always occurring with -- and locked to -- mass. Indeed, charge is not necessarily quantized just as it is not necessarily locked to mass.



Ehrenhaft discovered and reported fractional charges for years, in the 30's and 40's, and was ignored. See P.A.11. Dirac, "Development of the Physicist's Conception of Nature," Symposium on the Development of the Physicist's Conception of Nature, ed. Jagdish Merha, D. Reidel, Boston, 1973, pp. 12-14 for a presentation of some of Ehrenhaft's results. Within the last few years Stanford University researchers also have positively demonstrated the existence of "fractional charge." For a layman's description of their work, see "A Spector Haunting Physics," Science News, Vol. 119, January 31, 1981, pp. 68-69. Indeed, Dirac in his referenced article points out that Millikan himself -- in his original oil drop experiments -- reported one measurement of fractional charge, but discounted it as probably due to error.

(15) Presently, things are always regarded as traveling through normal space. Thus we use or model only the most elementary type of motion -- that performed by vector electromagnetic energy. We do not allow for things to "travel inside the vector flow itself." Yet, actually, there is a second, more subtle flow inside the first, and a third, even more subtle flow inside the second, and so on. We may operate inside, onto, into, and out of energy itself -- and any anenergy component of energy. There are hypervectors and hyperscalars unlimited, within the ordinary vectors and scalars we already know. Further, these "internal flows" can be engineered and utilized, allowing physical reality itself to be directly engineered, almost without limits.

(16) We always assume everything exists in time. Actually, nothing presently measured exists in time, because the physical detection/measurement process of our present instruments destroys time, ripping it off and tossing it away -- and thereby "collapsing the wave function." Present scientific methodology thus is seriously flawed. It does not yield fundamental (spacetime) truth, but only a partial (spatial) truth. This in turn leads to great scientific oversights. For example, mass does not exist in time, but mass x time (masstime) does. A fundamental constant does not exist in time, but the "constant x time" does. Energy does not exist in time, but energy x time (action) does. Even space itself does not exist in time -- spacetime does. We are almost always one dimension short in every observable we model. Yet we persist in thinking spatially, and we have developed Instruments that detect and measure spatially only. Such instruments can never measure and detect the phenomenology of the nested substrata of time. By using scalar technology, however, less limited instruments can indeed be constructed -and they have been. With such new instruments, the phenomenology of the new electromagnetics can be explored and an engineering technology developed.

(17) We do not recognize the connection between nested levels of virtual state (particle physics) and orthogonally rotated frames (hyperspaces). Actually the two are identical, as I showed in the appendix to my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 233-235. A virtual particle in the laboratory frame is an observable particle in a hyperspatial frame rotated more than one orthogonal turn away. This of course implies that the hyperspatial velocity of all virtual particles is greater than the speed of light. The particle physicist is already deeply involved in hyperspaces and hyperspatial charge fluxes without realizing it. In other words, he is using tachyons (particles that move faster than light) without realizing it.

(18) Presently quantum mechanics rigorously states that time is not an observable, and therefore it cannot be measured or detected. According to this assumption, one must always infer time from spatial measurements, because all detections and measurements are spatial. With this assumption, our scientists prejudice themselves against even looking for finer, subquantal measurement methodologies and instrumentation. Actually this present limitation is a result of the type of electromagnetics we presently know, where all instruments (the "measurers") have been interacted with by vector electromagnetic energy (light). Every mass that has temperature (and all masses do!) is continually absorbing and emitting photons, and in the process they are continually connecting to time and disconnecting from time. If time is continually being carried away from the detector itself by its emitted photons, then the detector cannot hold and "detect" that which it has just lost. With Tesla electromagnetics, however, the fundamental limitation of our present instruments need not apply. With finer instruments, we can show there are an infinite number of levels to "time", and it is only the "quantum level time" which is continually being lost by vector light (photon) interaction. By using subquantal scalar waves, instruments can move to deeper levels of time -- in which case the upper levels of time ARE measureable and detectable, in contradistinction to the present assumptions.

(19) In the present physics, time is modeled as, and considered to be, a continuous dimension such as length. This is only a gross approximation. Indeed, time is not like continuous "dimension," but more like a series of "stitches," each of which is individually made and then ripped out before the next stitch appears. "Vector light" photons interact one at a time, and it is this interaction with mass that creates quantum change itself. The absorption of a photon -- which is energy x time -- by a spatial mass converts it to masstime: the time was added by the photon. The emission of a photon tears away the time, leaving behind again a spatial mass. It is not accidental, then, that time flows at

the speed of light, for it is light which contains and carries time. It is also not accidental that the photon IS the individual quantum. Since all our instruments presently are continually absorbing and emitting photons, they are all "quantized," and they accordingly "quantize" their detections. This is true because all detection is totally internal to the detector, and the instruments detect only their own internal changes. Since these detections are on a totally granular quantized background, the detections themselves are quantized. The Minkowski model is fundamentally erroneous in its modeling of time, and for that reason relativity and quantum mechanics continue to resist all attempts to successfully combine them, quantum field theory notwithstanding.

(20) Presently, gravitational field and electrical field are considered mutually exclusive. Actually this is also untrue. In 1974, for example, Santilli proved that electrical field and gravitational field indeed are not mutually exclusive. In that case, one is left with two possibilities: (a) they are totally the same thing, or (b) they are partially the same thing. For the proof, see R. M. Santilli, "Partons and Gravitation: Some Puzzling Questions," Annals of Physics, Vol. 83, No. 1, March 1974. With the new Tesla electromagnetics, pure scalar waves in time itself can be produced electrically, and electrostatics (when the charge has been separated from the mass) becomes a "magic" tool capable of directly affecting and altering anything that exists in time--including gravitational field. Antigravity and the inertial drive are immediate and direct consequences of the new electromagnetics.

(21) Presently, mind is considered metaphysical, not a part of physics, and not affected by physical means. Literally, the prevailing belief of Western scientists is that man is a mechanical robot -- even though relativity depends entirely upon the idea of the "observer." Western science today thus has essentially become dogmatic, and in this respect borders on a religion. Since this "religion," so to speak, is now fairly well entrenched in its power in the state, Western science is turning itself into an oligarchy. But mind occupies time, and when we measure and affect time we can directly measure and affect mind itself. In the new electromagnetics, then, man regains his dignity and his humanity by restoring the reality of mind and thought to science. In my book, The Excalibur Briefing, I have already pointed out the reality of mind and a simplified way in which it can be modeled to the first order. With scalar wave instruments, the reality of mind and thought can be measured in the laboratory, and parapsychology becomes a working, engineering, scientific discipline.

(22) Multiple-valued basic dimensional functions are either not permitted or severely discouraged in the present theory. For one thing, integrals of multiple valued derivative functions have the annoying

habit of "blowing up" and yielding erroneous answers, or none at all. And we certainly do not allow multiple types of time! This leads to the absurdity of the present interpretation of relativity which permits only a single observer (and a single observation) at a time. So if one believes as "absurd" a thing as the fact that more than one person can observe an apple at the same time, the present physics fails. However, the acceptance of such a simple proposition as multiple simultaneous observation leads to a physics so bizarre and incredible that most Western physicists have been unable to tolerate it, much less examine its consequences. In the physics that emerges from multiple simultaneous observation, all possibilities are real and physical. There are an infinite number of worlds, orthogonal to one another, and each world is continually splitting into additional such "worlds" at a stupendous rate. Nonetheless, this physics was worked out by Everett for his doctoral thesis in 1956, and the thesis was published in 1957. (See Hugh Everett, III, The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition, with papers by J. A. Wheeler, B.S. DeWitt, L. N. Cooper and D. Van Vechten, and N. Graham; eds. Bryce S. Dewitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.) Even though it is bizarre, Everett's physics is entirely consistent with all the present experimental basis of physics. The present electromagnetic theory is constructed for only a single "world" or universe -- or "level." The expanded theory, on the other hand, contains multiply nested levels of virtual state charge -- and these levels are identically the same as orthogonal universes, or "hyperframes." Multiple kinds -- and values -- of time also exist. The new concept differs from Everett's, however, in that the orthogonal universes intercommunicate in the virtual state. That is, an observable in one universe is always a virtual quantity in each of the other universes. Thus one can have multi-level "continuities" and "discontinuities" simultaneously, without logical conflict. It is precisely these levels of charge -- these levels of scalar vacuum -- that lace together the discontinuous quanta generated by the interaction of vector light with mass.

However, to understand the new electromagnetic reality, one requires a new, expanded logic which contains the old Aristotlean logic as a subset. I have already pointed out the new logic in my paper, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," 1979, available from the National Technical Information Center, AD-A071032.

Even as logic is extended, quantum mechanics, quantum electrodynamics, and relativity are drastically changed by the Tesla electromagnetics, as I pointed out in my paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1580

Magnolia, Millbrae, California, 94030, 1980.

The present electromagnetics is just a special case of a much more fundamental electromagnetics discovered by Nikola Tesla, just as Newtonian physics is a special case of relativistic physics. But in the electromagnetics case, the differences between the old and the new are far more drastic and profound.

### ADDITIONAL REFERENCES

1, Boren, Dr. Lawrence Milton, "Discovery of the Fundamental Magnetic Charge (Arising from the new Conservation of Magnetic Energy)," 1981/82 (private communication). Dr. Boren has a cogent argument that the positron is the fundamental unit of magnetic charge. His theory thus assigns fundamentally different natures to positive charge and negative charge. In support of Dr. Boren, one should point out that the "positive" end of circuits can simply be "less negative" than the "negative" end. In other words, the circuit works simply from higher accumulation of negative charges (the "negative" end) to a lesser accumulation of negative charges (the "positive" end). Nowhere need there be positive charges (protons, positrons, etc.) to make the circuit work. Dr. Boren's theory, though dramatic at first encounter, nonetheless bears close and meticulous examination -- particularly since he has been able to gather experimental data which support his theory and disagree with present theory.

2. Eagle, Albert, "An Alternative Explanation of Relativity Phenomena," *Philosophical Magazine and Journal of Science*, No. 191, December 1939, pp. 694-701.

3. Ehrenhaft, Felix and Wasser, Emanuel, "Determination of the Size and Weight of Single Submicroscopic Spheres of the Order of Magnitude  $r = 4 \times 10^{-5}$  cm. to  $5 \times 10^{-6}$  cm., as well as the Production of Real Images of Submicroscopic Particles by means of Ultraviolet Light," *Phil. Mag. and Jour. of Sci.*, Vol. II (Seventh Series), No. 7, July 1926, pp. 30-51.

4. Ehrenhaft, Felix and Wasser, Emanuel, "New Evidence of the Existence of Charges smaller than the Electron - (a) The Micromagnet; (b) The Law of Resistance; (c) The Computation of Errors of the Method," *Phil. Mag. and Jour. of Sci.*, Vol. V (Seventh Series), No. 28, February 1928, pp. 225-241.

5. See also Ehrenhaft's last paper dealing with the electronic charge, in *Philosophy of Science*, Vol. 8, 1941, p. 403.

6. McGregor, Donald Rait, The Inertia of the Vacuum: A New Foundation for Theoretical Physics, Exposition Press, Smithtown, NY, First Edition, 1981, pp. 15-20.
7. Ignat'ev, Yu. G. and Balakin, A. B., "Nonlinear Gravitational Waves in Plasma," Soviet Physics Journal, Vol. 24, No. 7, July 1981, (U.S. Translation, Consultants Bureau, NY, January 1982), pp. 593-597.
8. Yater, Joseph C., "Relation of the second law of thermodynamics to the power conversion of energy fluctuations," Phys. Review A, Vol. 20, no. 4, October 1979, pp. 1614-1618.
9. DeSantis, Romano M. et al, "On the Analysis of Feedback Systems With a Multipower Open Loop Chain," October 1973, available through the Defense Technical Information Center (AD 773188),
10. Graneau, Peter, "Electromagnetic jet-propulsion in the direction of current flow," Nature, Vol. 295, 28 January 1982, pp. 311-312.
11. "Gravity and acceleration aren't always equivalent," New Scientist, 17 September 1981, p. 723.
12. Gonyaev, V. V , "Experimental Determination of the Free-Fall Acceleration of a Relativistic Charged Particle. II. A Cylindrical Solenoid in a Time-Independent Field of Inertial Forces," Izvestiya VUZ, Fizika, No. 7, 1979, pp. 28-32. English Translation: Soviet Physics Journal, No. 7, 1979, pp. 829-833. If one understands the new, expanded electromagnetics, this Soviet paper indicates a means of generating antigravity and pure inertial fields.
13. R. Schaffranke, "The Development of Post-Relativistic Concepts in Physics and Advanced Technology Abroad," Energy Unlimited, No. 12, Winter 1981, pp. 15-20.
14. F. K. Preikschat, A Critical Look at the Theory of Relativity, Library of Congress Catalogue No. 77-670044. Extensive compilation of measurements of the speed of light. Clearly shows the speed of light is not constant but changes, sometimes even daily.

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## COMMENTS ON THE NEW TESLA ELECTROMAGNETICS

### Part II: The Secret of Electrical Free Energy

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Again I wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. I thank them both for their exceptional contributions and stimuli, and their forbearance with the many discussions we have held on this and related subjects.

Also, it goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

Present electromagnetic theory is only a special case of the much more fundamental electromagnetism discovered by Nikola Tesla at the turn of the century.

Pure vacuum is pure charge flux, without mass. The vacuum has a very high electrical potential -- something on the order of 200 million volts, with respect to a hypothetical zero charge.

Thus in an ordinary electrical circuit, each point of the "ground" -- which has the same potential as the vacuum -- actually has a non-zero absolute potential. This circuit ground has a value of zero only with respect to something else which has the same absolute electrical potential.

Voltage, which is always associated with a flow of electrical "mass" current (even if only a miniscule flow), is, by definition, a difference dropped in potential when a charge mass moves between two spatially separated points. What we have termed "electrical current" only flows where there is a suitable conducting medium between things which have a difference in absolute potential. Furthermore, between any two points in any material, there is considered to exist a finite resistance -- if we apply a voltage and have a mass current flowing between the two points! The simple statement that  $V = IR$  irrevocably ties together voltage drop, mass current, and resistance between two points. Rigorously, to have one of the three is to have them all. To lose one is to lose all three. Immediately we see a major error in present theory: One can have a "difference in scalar potential" between two points without having a "voltage drop" between them. Specifically, if no mass current flows between them, no resistance exists between them, and no voltage drop exists between them.

In the same fashion, one can have a "scalar wave" through the

In the same fashion, one can have a "scalar wave" through the vacuum without a voltage wave. In that case, the wave has no E-field and no H-field. The only reason one has an E-field

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around a statically charged object is because the charged electrons accumulated on the object are actually in violent motion. It is this motion of the charged masses that produces E-field -- as well as H-field whenever that entire E-field ensemble moves through laboratory space.

Now let us reason together in the "approximate" manner utilized in present electromagnetic theory. For example, let us examine a bird sitting on a high tension line.

The bird sits on the high tension line without a flow of mass electricity, because there is no significant difference in potential drop between the bird and the line. Specifically, between the bird's two feet -- each in contact with a different portion of the line -- there exists no potential difference. This is true even though, with respect to the vacuum, each foot is at a potential that would be "100,000 volts higher," were a mass current flowing. And it is true even though the absolute potential of each foot may be some 200.1 million "volts," were a mass current flowing.

Now an interesting thing happens to the bird when he flies through the air to light upon the high tension wire. As he flies toward the wire, he is flying through the massless electrostatic potential field of the wire, for that field extends an infinite distance away from the wire. The electrostatic potential field -- pure  $\phi$ -field -- is actually the spatio-temporal intensity of the massless charge at a point. In other words, as the bird flies to the wire, he flies into an increasing "massless charge" potential, building up to 100,000 "volts" higher than the earth. However, very little (if any) "mass flow" potential difference is experienced upon his body in approaching the wire, and so essentially no "charged mass currents" are induced in his body. Thus the little flier safely navigates into the teeth of a very high electrostatic potential, lights upon the wire, and is not "fried" in the process. When he lights on the wire, his body has reached the electrostatic potential that each foot's contact point has. Again, there is no mass current flow. But his body is immersed in an increased flux of massless charge -- which is what the electrostatic potential represents. And each "virtual particle" flow in that charge potential represents a "massless (scalar)" electrical current.

The point is, one can have any amount of massless charge flow -- "scalar" current -- without any mechanical work being done in the system. All electrical work in a circuit is done against the physical mass of the charged masses that flow. Rigorously, force is defined as the time rate of change of momentum. Even in the relativistic case where  $F = ma + v(dm/dt)$ , change of momentum requires mass movement. No mechanical work, and hence no energy, is expended by massless charge flow.

That is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work

that is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work on our systems, and expends none of its very high "potential energy." It is exactly the same as the bird which flew into an

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increasing scalar field as it approached the high tension wire -- no work was done upon the bird by the increasing scalar flux currents encountered by its body.

By existing "in the vacuum," so to speak, we (the whole earth) are as birds sitting on a high tension line! Until we create significant difference in potential, via our present electromagnetic circuits, no current can flow -- anywhere. Even if we produce potential differences, we must have a conductor and charged masses to flow, if we wish to produce mechanical work. Presently our electromagnetic theory allows us to create a difference in potential within different parts of a circuit, but only by moving and shifting charged mass. We therefore have to do work on this electrical mass in moving it around, and we only get back the work we have put into the circuit. In other words, presently all we do is "pump" electrical mass.

Now notice what would happen to the bird on the line if we substantially "pulsed" the potential on the line. Suppose we "pulsed" it such that the bird's physical system -- considered as a circuit containing a capacitance, a resistance, an inductance, and many free electrons -- became resonant to the pulsing frequency. In that case the "bird system" would resonate, and a great deal of electrical mass would surge back and forth in the body of the bird. In the bird's body, voltage would exist, charged mass current would flow, work would be done, and the bird would be electrocuted.

Also, note that, without mass movement, electromagnetic vector fields are not produced (and a portion of the difficulty lies with the actual vector mathematics itself). Scalar (nonvector) waves continually penetrate "space" where there is no mass movement. This means there can exist a " $\Delta\phi$ " without a voltage or an E-field. The present theory does not allow this, because it always uses "q" (charge) to be charged mass. Briefly, without belaboring the point, let us just say that it is the mechanical spin of the individual charged particle -- such as the electron -- which "entangles" or "knits together" or "couples" independent scalar waves into vector waves. A vector wave is simply two coupled scalar waves. The entire force field concept -- such as the E-field and the B-field -- is operationally defined in terms of the force exhibited on a test particle, or test mass. Rigorously, an E-field does not exist as a force field in vacuum, but as two coupled scalar  $\phi$ -fields "tumbling about each other." When these two coupled, tumbling fields meet a spinning electron, e.g., the force emerges on the electron mass. In short, movement of a rotating mass changes  $\Delta\phi$  to "voltage", creating the V/I/R triad.

By "accumulating charged mass particles" -- such as electrons -- one certainly can increase the value of  $\phi$ , which represents the charge intensity or "scalar electrostatic potential." However, that is not the only way to increase it. Resonance and rotation of charged masses can also be appropriately employed to vary the vacuum charge potential  $\phi$ , under the proper circumstances.

or charged masses can also be appropriately employed to vary the vacuum charge potential  $\Phi$ , under the proper circumstances.

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By the correct application of rotary principles and Tesla electromagnetic theory, it is possible to oscillate -- and change -- the vacuum potential itself, in one part of an electrical system. Thus by correct procedures a part of a system can be electrically altered so that the absolute value of its "ground" (vacuum) potential differs significantly from the normal vacuum-ground potential of the remainder of the circuit. In other words, we shift the vacuum-ground potential of part of the circuit by oscillating the massless vacuum charge itself, and in so doing we gain a substantial, oscillatory electrical potential difference between that part of the circuit and the normal ground potential of the rest of the system. Then we connect the two parts of the system by means of a conductor containing a load in the middle.

In every conductor, a large number of "free electrons" are available. If we oscillate the actual vacuum charge itself, unlimited additional free electrons also become available from the Dirac sea, since partial "unstripping" of the negative energy wells (each containing an electron) occurs. This "unstripping" of the potential of the well is due to vacuum potential oscillation, which oscillates time as well as space. To a negative energy well (positive time), the oscillation of its "time stream" increases the well's negative potential during one half-cycle and decreases its potential for the other half-cycle. Thus during half the oscillatory cycle, negative energy electrons may be lifted from the Dirac sea if the oscillation is sufficiently intense.

Therefore we obtain an attendant voltage and flow of mass current through the load. This voltage and current, by the way, are essentially limitless, and are free for the asking, assuming the proper "vacuum oscillation" is initiated and maintained so that electrons are continually being lifted from the Dirac sea by the time oscillations, and fed into the circuit.

Standard electromagnetic theory assumes that the vacuum potential is zero. It does not recognize the existence of massless charge, separated from charged mass. Therefore, orthodox scientists have never looked for a way to engineer the vacuum, because they have not realized it is composed of pure massless charge. Electrical physics has almost hopelessly confused charge and charged mass, thereby eliminating scalar longitudinal electrostatic waves. Expressed in the bird/high tension line analogy, the present electromagnetic theory restricts us to walking along the high tension line, laboriously carrying small batteries and power units, unaware of the limitless, surging power beneath our very feet.

Electromagnetically, we have been rather like one of the five blind men who touched an elephant. We have only touched one small portion of the electromagnetism "elephant," yet we thought we had grasped the entire beast.

## OVERTURE TO A NEW AGE TECHNOLOGY

From an Update by Dr. Rolf Schaffranke

" ... as there has been a steady erosion in U. S. activity in the basic sciences, there has been an increase in the level of such activity in Western Europe and Japan. If that continues, we are in danger of losing our position of scientific leadership."

Val. L. Fitch, Prof. of Physics at  
Princeton University, in an interview with  
*U.S. News & World Report*, June 21, 1982.

### West Germany:

The prototype of the first motorcycle equipped with a "flux-motor" (the inventor's designation for a tachion field converter or gravity-field generator) of 2 KW output has completed a test run of approximately 20,000 km without repairs. Principle of operation: The T-converter is constantly recharging the electrical power battery of the vehicle, resulting in an operation which is noiseless, fuelless and pollution-free. After completion of all scheduled tests, a public demonstration to the press is planned within a few weeks from the time of this writing. (June 17, 1982) See photo, Pg. 19. A new factory for the production of gravity-energy-field converters in the town of Oldenburg is scheduled to produce individual home heating units. The design of automobile power plants based on the same principle is also in preparation. Reported efficiency factors of several hundred percent are anticipated.

### Japan:

Mazda continues research on the "magnetic Wankel engine" (45 HP) for electric automobiles, based on the principle of Kure Tekko. The gravity research of Prof. S. Seike is now sponsored by Hitachi, after millions of Japanese received updated information via popular science magazines. It is interesting to note that Saudi Arabia has decided to invest \$100 million in Hitachi stocks.

### France:

The "Kromrey" converter has completed tests at the Institute for Magneto-statics, University of Strasbourg. One prototype delivered 700 Watts at 600-1200 RPM, at a fairly uniform rate. However, France, as the No. 1 developer of nuclear energy in Europe, is still reluctant to concentrate her energies on a revolutionary new technology which could result in drastic curtailments of her well-developed nuclear industry and associated exports. See photos, Pg. 22.

### Denmark:

Dr. Jensen, physicist at the University of Copenhagen, reported test results of 300% efficiency with a specially designed, 5-coil transformer in connection

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with a tachion field converter based on the principle of the "N" machine. First reports were presented at the International Conference on Energy Technology in Hannover, Nov., 1980.

England / USA:

A "bullet train" based on the magnetic levitation system of British Prof. Eric Laithwaite is now under consideration for construction between Los Angeles and San Diego. Japan and West Germany are already operating high speed experimental trains, suspended magnetically to reduce friction, that may soon attain speeds of more than 200 miles per hour. The Laithwaite-Eastham method would use electromagnetic forcefields induced over an aluminum-topped concrete track. The project will probably be headed by a Japanese company as the prime contractor.

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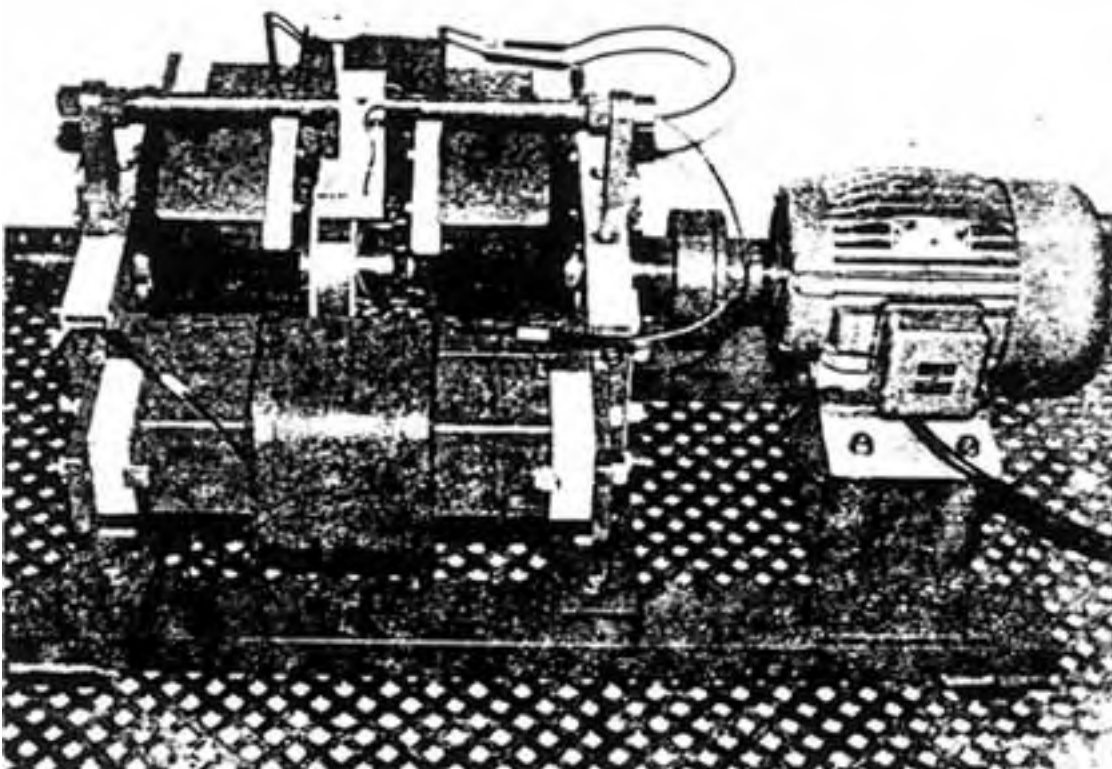
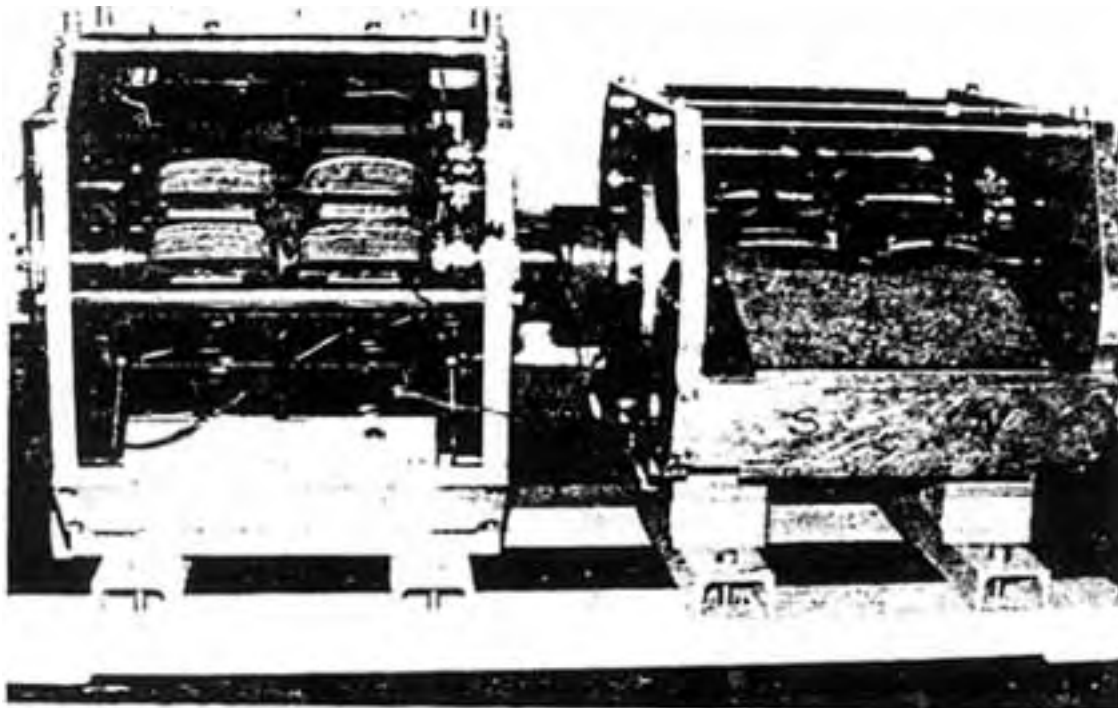




West German gravity-field unit in operation

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Swiss-French gravity field converter system "Kromrey"

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## REVIEW AND OUTLOOK

### THE DEVELOPMENT OF POST-RELATIVISTIC CONCEPTS IN PHYSICS AND ADVANCED TECHNOLOGY ABROAD

Rolf Schaffranke, Dr. h. c.  
Member A.I.A.A.

*This paper was presented at The First  
International Symposium on Non-Conventional  
Energy Technology, Toronto, Ontario, Canada,  
Oct. 23-24, 1981. (Reprinted by permission of  
the author.)*

"Far more harm is done to the progress of science by  
skepticism than by gullibility". (Dr. Robert Wood, Director  
R & D, McDonnell-Douglas Astronautics Div., Cal.) NASA  
- Langley Research Center in Hampton, VA is named after  
Samuel Pierpont Langley (1834-1906), an American  
astronomer, engineer and architect.

Langley worked out the aerodynamic principles for  
manned flight. In principal, his calculations were correct;  
but the structural materials he used for wings and engines  
were ,insufficient. In December of 1903, the *New York  
Times* published an editorial complaining about his foolish  
dream and the associated waste of government money. The  
editorial predicted that: "man would not fly for a thousand  
years".

Only 9 days after the editorial was published, the Wright  
brothers made their first successful powered flight at Kitty  
Hawk. (Dec. 17, 1903). But, again, as late as 1905, the  
*Scientific American* suggested the happening was a hoax -  
two years after the event which changed history. Let's reflect  
for a moment on the fact that only in a single lifetime, man  
has journeyed from Kitty Hawk to the surface of the moon!

The analogy to the problem of alternative energies and  
their development is, of course, obvious. We try to educate  
the preaching orthodoxies. But orthodox solutions are no  
longer enough. Our system of education can only give from

the past. The present must operate on inspiration and intuition, or the future will be lost. The past no longer has enough of the answers for arising crises for which there are no precedents. To keep pace with the requirements of the future, we must begin to teach not only what to learn, but how to learn, how to analyze, how to search for the truth. Only then will be able to recognize discrepancies between experiment and dogma and to cope with problems which appear to be just beyond the corner. History has shown again and again that no single individual can rise above the species without being persecuted. The reasons for that are:

Some of the most powerful forces in homo sapiens have always been

Greed, Pride, Ego, Fear and, above all, the Desire to Control Others,

A brand new German book titled *Energy in Abundance*, which is evidently creating a considerable impact in the European community, challenges the contemporary high

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priests of science, the "Guardians of the Status Quo" and uncovers an almost incredible narrowmindedness and ignorance in science, politics and economics, "approaching the criminal" as the author puts it. The contemporary waste of genuine intellectual creativity is castigated as a cultural scandal approaching barbarism. The book stresses that a truly promising approach to the so-called energy crisis requires a fundamental and thorough re-evaluation of the theories, dogmas and axioms which form the basis of present day science and the foundation of our technology. As in the past, the formidable inertia of the establishment is not only based on inaccurate, incomplete and outdated information, but also on its reluctance to accept new ideas. The honest search for the truth first requires that we first demythologize generally accepted claims of so-called experts of the past. An excellent introduction to this problem is the article "Resistance by Scientists to Scientific Discovery" by Bernard Barber in *Science*, Vol. 134, pp. 596-602, of Sept. 1961, or the paper by Stephen C. Brush in *Science* of March, 1974, titled "Should the History of Science be Rated 'X'?", culminating with a statement of Huxley:

"Authorities", "disciples", and "schools" are the curse of science and do more to interfere with the work of the scientific spirit than all its enemies".

The former astronaut, Capt. Edgar D. Mitchell, one of our famous contemporaries, also stressed the need for an open mind!

"History has shown time and again that important scientific discoveries generally happen only when someone steps outside the limits of his traditional discipline and looks at something from a fresh point of view. Then what should have been obvious all along comes into focus".

Those of us who are familiar with the pioneering efforts of Dr. Hans Nieper of Hanover will appreciate this statement by an ex-astronaut.

One of the most important cornerstones of today's scientific dogmas dates back to 1905, more than 3/4 of a century ago. Lest we forget, television and radar, jet-planes and cyclotrons, moonrockets and close-up photos of the planets of our solar system were nothing but wild fantasies of science fiction then.

The speed of light was assumed to be constant and the maximum possible speed in the universe; vacuum was to be a total void. In reality, the speed of light as measured in the Michelson-Morley experiments was not at all the same in all directions. The "ether-drift" still amounted to the respectable velocity of about five miles per second, and similar results were obtained by D. C. Miller in a series of experiments extending over twenty-five years, from 1902 to 1926.

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"Even worse, the measurements showed such marked discrepancies with previous results as to occasion a distress call to the U. S. Coast & Geodetic Survey, whose surveyors repeatedly remeasured the length of the tube and found no error there," reported the *Popular Science Monthly* March 1934 issue. And it continued: "More recently, speed of light observations only emphasized the apparent erratic behavior of the light beam that the scientists were attempting to plot. On some days it seems to travel faster than others by as much as 12 miles a second. Its speed seems to vary with the season, and also in a mysterious shorter cycle lasting about 2 weeks. Finally, the scientists ended by taking an average of all the readings which has just been announced as 186,271 miles per second".

In his paper "A Critical Look At the Theory of Relativity", Library of Congress Cat. No. 77-670044, F. K. Preikschat compiled all known light velocity measurements during the past 300 years or so, from Olaf Roemer in 1676 to the Laser measurements conducted by the National Bureau of Standards (USA) in 1972.

Of the 27 experiments undertaken in this field, 18 of them after the turn of this century, it must be concluded that the velocity of light as measured within the reference system of our earth has changed as much as plus/minus 50 km/sec, during the past century. Preikschat plotted a curve of these deviations and suggests a possible relationship between sunspot activities and changes of the earth magnetic field during the time period in question.

The "universal constancy of light" appears, therefore, as somewhat shaky "empirical evidence" for our cornerstone in physics, especially since Einstein himself has gone on record as saying:

"If a single one of the conclusions drawn from it (relativity theory) proves to be wrong, it must be given up; to modify it without destroying the whole structure seems to be impossible".

Another modification concerns the definition for the term "vacuum" in physics, as documented by a paper in the *American Scientist*, March-April 1980, titled "Is The Vacuum Really Empty?" by Prof. Walter Greiner, University of Frankfurt, BRD, and Prof. Joseph H. Hamilton, Vanderbilt University, Nashville, Tenn.

The authors conclude that a neutral vacuum is by no means as "empty" as previously claimed in our textbooks, and suggests a new definition as follows:

"The vacuum is the lowest stable state that a region of space can have while being penetrated by certain fields".

Because of the tremendous time lag in our educational system, many research

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projects and their ensuing experimental data have been withheld from public scrutiny. The scientific community tends to have a vested interest in preserving the system it created and of which it is a part. It responds to new situations through the coloration of this attachment. A case in point are the carefully conducted experiments of T. T. Brown with charged bodies in a high vacuum, as described in my booklet *Ether Technology* (1977). These experiments suggest the actual presence of certain fields in vacuum, whether we call them gravitational field, tachion-field, ether-field, neutrino or Fermi-sea, etc. is of secondary importance at this moment. Although Brown spent, reportedly, more than \$200,000 of his own funds over several decades on such experiments, he was nevertheless unable to have the results published in the scientific media of America.

Things are even worse when it comes to experiments conducted abroad, which often tend to confirm disregarded experimental results on this continent, as we shall see shortly. To highlight the wide discrepancies between orthodox (and obsolete) dogmas and actual, physical realities pertaining to the true subatomic structures as we know them to be today, let us briefly review the structure of the matter:

A molecule is the smallest division of a substance. Further division would cause it to cease being a substance. The smallest of true molecules can be illustrated when we use the globe of the earth for our standard. If a single drop of water were magnified until it was as big as the earth, each molecule would be about the size of a TENNIS BALL.

On the next step down, an atom is the unit which makes up the nature of the molecule, consisting of the nucleus and the surrounding electrons to render the atom "stable". An atom of hydrogen contains one proton and one electron to balance or neutralize the proton. Matter then is divisible into electrons and protons. But - and here comes the rub: Between electrons and protons are spaces so vast, in comparison with the masses of each, that, if the proton in the carbon atom were the size of a golf ball hanging from the ceiling of the great hall at Pennsylvania Station in New York, its electrons would be represented by six small wasps winging in a little knot against the four walls of the gigantic structure of the building! In effect, one could claim there is little final solidity of substance to anything: The universe consists of "emptiness", charged with electrical energy! If we translate the above to the measurements and terminology of the physicist and "magnify" the atom mathematically, with all its distances and dimensions kept in proportion so that the orbit of the electron would have a diameter equal to that of the earth about the sun, approximately 184 million miles, the diameter of the electron itself would only be 2,000 miles, and the diameter of the nucleus, where

electron itself would only be 2,000 miles, and the diameter of the nucleus, where

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mass and weight of the atom are truly concentrated, can be taken as 2 miles only. We thus obtain a picture of a central mass with a diameter of 2 miles (nucleus), another object with a diameter of 2,000 miles (the electron, in the case of the hydrogen atom) at a distance of 92 million miles away from it, orbiting the nucleus. Evidently, there is plenty of room inside this system. And "room" is not a vacuum, it is not nothingness, but space itself, spatial energy, a field which can be identified with the ether of the past - and of the future. Nobel prize winner, Max Planck, during a lecture in Florence, Italy, once made a truly remarkable statement which describes the problem facing the physicist today:

"As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell you as the result of my research about the atoms this much:

'THERE IS NO MATTER AS SUCH!'

All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together. ... We must assume behind this force the existence of a conscious and intelligent MIND. This mind is the matrix of all matter".

This cosmic matrix is needed if we want to explain "action at a distance", lines of force, stresses, a magnetic field and so on. When the concept of the ether was abandoned, it had to be replaced by the concept of "space" instead. In reality, we merely switched terminology. We used to say that "ether fills all Space". But "filling" is not exactly the descriptive word to use. Perhaps we should rather define it: "Ether is a condition of space in which electrical manifestations for the atomic construction of materials is possible". This primordial energy is "free" or in an uncondensed state. It exists in interstellar space but remains unrecognizable until it begins to coagulate or gets into a vortex pattern. It constitutes the formative field force of nature, an immense reservoir of latent energy.

The claim of our textbooks that the Michelson-Morley experiment "disproved" the existence of the ether is incorrect. It merely disproved the existence of a noticeable ether drift or drag. As an analogy, if somebody would postulate that the absence of wind disproves the existence of the atmosphere around our planet, the fallacy of this postulate would be immediately apparent to all.

"Michelson and Morley centered their attention on the Earth's orbital velocity (30 km per second). They had no knowledge of the existence of galaxies; of motions of galaxies in relation to each other; of the motion of our solar system in our galaxy..... Their negative results are explainable on the basis of pre-1900 classical mechanics, so provide no proof of the absence of ether or Louis de Broglie's

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'subquantic medium'. Thus, the limited information available to Michelson and Einstein is emphasized by recent findings, particularly in astrophysics", writes Dr. H. C. Dudley in the *Bulletin of the Atomic Scientists*, January, 1975, under the title "Michelson's Hunch Was Right". And Dr. Dudley continues: "In fact, 1929 saw Michelson still attempting to experimentally demonstrate the ether, which his intuition and reasoning told him ought to be present".

"Today most persons are largely unaware that the ether concept began to be seriously reexamined by two of physics most notable theoreticians, Paul Dirac in 1951 and de Broglie in 1959, both Nobel laureates. The ether is now being called the "neutrino sea" by astrophysicists, and has been characterized as an energy-rich particulate, subquantic medium. A rather voluminous literature on the subject is accumulating as indicated by a recent review, *The Cosmic Neutrino*, with 665 references covering only the period 1965-1972.....It appears that an open-minded reexamination of this area of physics is long overdue in order to open up new avenues of approach to this pressing problem".

Michelson, Dirac, de Broglie were not the only Nobel prize winners in favor of a reexamination of the ether question. Others were Stark, Arrhenius, A. H. Compton, Lenard, H. Yukawa, and Frederick Soddy, the British scientist who, during the convention of Nobel laureates in Lindau, 1954, described the current dogmas in physics as "an orgy of amateur physics" and "arrogant swindle" - with particular emphasis on the theory of relativity. ("The Wider Aspects of the Discovery of Atomic Disintegration", New World Publications, St. Stephens House, Westminster S.W.I.)

It remained largely unknown, even among physicists, that Einstein himself had serious doubts. In 1949, he wrote to his old friend, Maurice Solovine, who congratulated him on his 70th birthday:

"Now you think that I am looking back at my life's work with calm satisfaction. But, on closer look, it is quite different. There is not a single concept of which I am convinced that it will stand firm and I am not sure if I was on the right track after all".

And one of my Canadian friends who I believe is present here today stated quite correctly in a letter to me:

"The myths around Einstein are really not of his making as he himself often questioned his own conclusions and I felt he was quite aware of his own limitations which others were covering up. The physicists protect their members much the same way that the medical profession protects its own."

The purpose of these remarks is not to spark another controversy about the merits of the theories of relativity. Rather, they want to show that so-called

merits of the theories of relativity. Rather, they want to show that so-called

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"scientific evidence" is a rather elastic term and that "verification" is always a relative affair. Or, as K. R. Popper so aptly put it:

"Only in our subjective experience of conviction, in our subjective faith, can we be 'absolutely certain'".

This symposium presents an excellent overview of research and experiments reported from English speaking countries, or experiments published in the English language, as for instance from Japan. However, as Dr. Tenhaeff from Holland has formulated the problem,

"It is important to pay attention to publications of colleagues in other countries. In the Netherlands and Germany, every academically educated man or woman knows at least three foreign languages. English and American authors only pay attention to material in English. In my opinion, this leads to an 'impoverishment' which puts a drag in science. Some seem very chauvinistic and seem to believe that only the researches done in their country are important. I regret this. Science is international, and international cooperation is of the greatest importance in science".

In presenting some brief reports from abroad, I shall attempt to bring corroborative evidence in support of alternative technology developments discussed during our meeting here in Toronto. Let me start with the most sensitive and secretive society, with Russia.

In his German original of the paper "Some Remarks on the Shielding Theory of Gravity", which was published in the Hanover Proceedings in more detail than the English abstract, Dr. Hans Nieper mentioned the Berlin engineer Levetzow, who was one of the first to postulate a combination pressure and shielding theory for the phenomena of gravity. Levetzow was soon overshadowed by the rising star of Albert Einstein, but one of his followers, Horst Pinkell, went to Russia in 1928 as an exchange student - and never returned. Together with Russian scientists, he was asked to prove the actual existence of the cosmic radiations postulated by Levetzow, now designated as neutrino sea or "tachion field". The work was done in Sterlitamak, South of the Ural mountains, and in 1938, sporadic reports reached the West about the discovery of extremely short corpuscular waves by Pinkell and Gorjew. These were the long sought "Hemmstrahlen" or drag waves associated with gravity. Rumors have it that a metal alloy was soon developed which acted as a drag wave polarisor and, in 1947, agents reported experimental Russian aircraft using this discovery. In 1951, a former German Junkers aircraft engineer reported about his activity pertaining to a super-secret project code named COW-7 in Siberia, a disk-shaped craft which could rise vertically and which belonged to the



Siberia, a disk-shaped craft which could rise vertically and which belonged to the

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secret weapons then developed by the Soviets. Whether it was related to the Canadian AVRO project or something entirely different remained unknown, only the Lev-etzow gravity theory was assumed in connection with the activity in question.

Japan: My esteemed friend, Prof. Seike, who kept me informed about the research conducted by him and his co-workers, surprised me once with a significant statement, which I feel is important to repeat for the benefit of frustrated researchers on this side of the Pacific: "In the early stage of my studies, physicists could not understand what I was doing, while actors and actresses did so by intuition". It was the private support of about 800 individual artists, etc., in Japan which allowed Seike to work, experiment and publish his findings, and not the support of the Japanese equivalent of a National Science Foundation or a similar bureaucratic institution in that country. Again and again, I was surprised how quickly and eagerly American experiments, as for instance the almost forgotten "Ionocraft" of the late Major de Seversky, were duplicated and explored even in Japanese secondary schools. Admiral Rickover has more than once complained about our intellectual complacency: "As a nation, we seem addicted to 'spectatoritis'. We sit in the bleachers and let the game of life unfold before us".

The results are known: The Japanese have achieved top position in science and technology, and not only with tachion beams melting stones, producing "biased" water with a freezing point of minus 4 degrees Celsius, and a G-power generator obtaining 400 V DC output from a 10 V input driving source. I wish to take this opportunity to thank Prof. Seike for sharing his work with us in this country, and wish him the best of success for the future.

France: The work of SEPED was explained by M. René Louis Valée and some French publications in the area of gravity-research have been translated by the NASA translation service, as for instance the theory of the electromagnetic Magnus-Effect (of Marcel Pagés).

Specific mention must be made of the Raymond Kromrey G-field generator, a French-German-Swiss development which appears very closely related to the American "N" machine principle, the "Sunburst" machine and the "Permanent Magnet-Motor" Patent of Howard Johnson. Utilizing either permanent or electromagnetic modules, the generator output exceeds the input by far. One prototype delivers approximately 700 watts at speeds varying between 600 and 1200 RPM. Models with an output of 100 to 160 kw are presently in the planning stage. Several European patents have been granted against heavy opposition, especially from French industrial circles. The development was about 40 years in the making and the inventor stresses the need for a reinvestigation of electromagnetic and gravitic forces, as well as a reexamination of many cemented dogmas in present-day physics.

...tion of many cemented dogmas in present-day physics.

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Germany: A system of rotating electromagnets and magnetic "stator rings" of the German "Kunel" Generator complement the general trend of the American and French generators mentioned before. The first prototype was reported to have been tested in April, 1980. Here, again, very heavy opposition from the German orthodox science establishment. Of special interest is a comment by Nobel laureate Werner Heisenberg, reported to have been made vis-a-vis the inventor:

"I think it is possible to utilize magnetism as an energy-source. But we science idiots cannot do that; this has to come from the outside".

More details about French and German developments have been published in the new book already mentioned, *Energy in Abundance* by Hilscher and, hopefully, an English version of this important work will be available by next year. Generators which do interact with surrounding energy fields have been designated as "open systems", in contrast to our present "closed system" technology of gasoline and diesel engines, steam turbines, nuclear power plants and so forth. The theoretical basis for all "open systems" is the realization that there simply is no such thing as "empty space". In reality, space is filled with an extremely energy rich, sub-atomic and subquantic continuum. In short, a "pre-physical state of matter", which can be tapped, as for instance by the spinning of magnetic systems which extract momentum via a vortex-formation of the universal "tachion field".

Austria: This small heartland of Central Europe is proud of her native pioneers in science, among them Dr. Wilhelm Reich, Viktor Schauburger and Karl Schappeller. But after Dr. Reich died in an American prison in 1957 and Victor Schauburger died only five days after his return from the USA (in 1958), where he received an incredibly unfair treatment from certain industrialists, there is little enthusiasm among Austrians to touch base with correspondents on this continent. Viktor Schauburger's son, Walter, refuses, as a matter of principle, to communicate with Americans, no matter in what language. To illustrate the type of "contract" Viktor Schauburger was forced to sign, it stated:

that all of his patents would become the property of the "consortium",  
that any future inventions or developments would also become  
the property of the "consortium",  
that he would refrain from discussing any of it with third parties,  
that he would refrain from publishing,  
that all plans and models would remain with the "consortium" after  
his departure from America.

There is a favorite saying in that small country which is much to the point:  
"After the Greek philosopher Pythagoras had discovered his famous

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theorem, he sacrificed a whole hecatomb of oxen as a thanksgiving to the Gods. Ever since, all the oxen in the world are running scared whenever a new truth has been discovered".

Knowledge of the ideas of Schauberger and Schappeller appears to be essential for an understanding of our changing picture of the physical world. As an example, the former forest ranger Viktor Schauberger had watched numerous times some trout standing, apparently motionless, in the strong currents of Alpine mountain streams. This and many similar observations of nature brought him to the gradual development of his "implosion-theory" and associated hardware (see Jensen paper elsewhere). His son is continuing the work in the "Pythagoras-Kepler" School in Bad Ischl. Another prolific researcher is the Viennese engineer Franz Seidl, known for his studies of the use of magnetic field effects as "trigger energy" for voltage and power multipliers.

Holland: A small country with strongly developed intellectual independence appears to be Holland, where Prof. J.M.J. Kooy developed his "Space Dynamics". His hypothesis of gravitational action is based on the realization that all celestial bodies can be conceived as practically transparent in relation to the size of the elementary particles and their mutual distances in the structure of matter. Gravitons or tachions, coming from all directions of deep space, can pass through a celestial body like water passes through a fishnet, and only a minute fraction of the cosmic gravitons or tachions will be intercepted. Study of the effects of the tachion field or space continuum of the fabric of material substances, magnets and crystal lattices can lead to development of converters and novel production facilities for readily usable, conventional E/M energy. When the American inventor Edwin V. Gray was blocked in his efforts to develop his "Pulsed Capacitor Discharge Electric Engine" for which he had received U. S. Patent #3,890,548, he found open ears and open minds in Holland.

The fact that Gray was named "Inventor of the Year" from the Department of Patent Rights in Los Angeles, California, where Dr. Chalfin of Cal Tech confirmed that:

There does not exist an even distantly similar engine to this one in the world. Conventional electric engines use up power. In this system energy is used up for only a minute part of a millisecond. It operates without heat loss and there is no energy loss whatsoever with this system",

had more meaning to the people of PHILIPS and others in Holland than to the energy establishment in his native America.

England: There is perhaps no more controversial inventor at this time than

perhaps there is perhaps no more controversial inventor at this time than

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John R. R. Searl and his Levity Disc, powered by the Searl Effect generator. It is claimed that model craft have been demonstrated with flight characteristics showing anti-gravitational and inertia-free properties. Demonstrations have been photographed and videotaped. Searl calls his generator a "Gyro-Flywheel High Energy Density Mechanical Magnetic Device" and claims that the magnets used are not the common type, ordinary magnets. The Australian engineer Athol Park of Melbourne, Australia, who visited Searl a few years ago described it this way:

"From a briefcase, Mr. Searl takes a bar magnet and two steel rollers. He places the rollers at either end of the magnet. They appear to be attracted to the poles - but, when they are pushed gently around the corners of the magnet, they chase each other round and round.... "

The engineer quotes Searl:

"The crystals in the magnet are changed by putting it in a magnetic flux oven and by frequency control. The result is motion of a magnetic field - a completely new source of power. Units (modules) based on this principle are what power my levity unit - the motor and generator built as one, fuelless unit".

In one of his numerous newsletters he states further:

"The power plant is a self-contained, onboard closed system of conversion elements with energy input from a latent storage source".

Because Searl has never divulged all details and his explanations are generally of a non-technical, "unscientific" nature, many investigators have chosen to dismiss him as a swindler and imposter. In sharp contrast to this is the opinion of a well-experienced American engineer who reported after a visit with Searl:

"I found it refreshing to note the keen sense of moral responsibility which he feels for the use to which his discovery is put... The Searls live in modest circumstances. Luxuries are few. They do not own a car. Mr. Searl bicycles several miles daily to his place of work in Maidenhead. There he is an electrical technician and training supervisor in a bearing factory".

But perhaps most significant was the following observation of the American visitor about Searl:

"We were also interested to hear him say that many of his ideas came to him while he slept. He would go to sleep with questions, and awake with answers... and refreshed. He seemed to have the

and awake with answers... and refreshed. He seemed to have the

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ability to restore vital powers more quickly than most people".

And the American concluded his report with the statement:

"The impression we gained of Mr. Searl was one of a very sincere and generous person, a dedicated and tireless worker with perfect confidence in the outcome of his efforts, a man of high principle with a keen sense of loyalty to those who are helping him, and of responsibility for the future welfare of our planet and its people".

In view of the very contradictory nature of comments and impressions by those who have met Searl, it might be wise to reserve final judgment on the Searl-Levity-Disc and its inventor at this time.

New Zealand: Some of Searl's keenest supporters and observers of his work are in New Zealand and Australia. And one of the sharpest young physicists in that country (new Zealand), unhampered by calcified ideology, developed the mathematical foundation for a theoretical anti-gravity effect, using the hydrodynamic analogy of the ether. He uses the equivalent of the hydrodynamic Reynolds number, above a certain value of which the laminar flow past a solid surface breaks down and becomes turbulent due to shear rupture of the viscous cohesion of a fluid, together with his deduction that anti-gravity could be obtained by creating a "vacuum: in the ether in such a way as to correspond to the production of turbulence in a magnetic field. Turbulence in a fluid occurs when Reynolds number  $RE = 1$ , when the inertial shearing force equals the viscous cohesion force in the fluid in the vicinity of an approximately spherical body immersed in the fluid, resulting in separation of the boundary layer and formation of a wake, i. e. vacuum or free surface around the body. He calculated the threshold for turbulence in the ether, = a vacuum = an anti-gravity effect, using the refined value of ether kinematic viscosity which he obtained.

His theory would confirm the observations of very high voltage produced in the case of the Searl Levity Disc, and the very high voltage needed in the vacuum experiments with flying disc-shaped bodies of T. T. Brown, the "ionocraft" observations of Major de Seversky, the "Electro-Field Rockets of Prof. Dudley, the observations of Northrop Corp. with "Electro-Aerodynamics in Supersonic Flow" and similar American documentation and patents.

Since the New Zealander is now in the process of attempting to publish his theory in a reputable British magazine, I am not at liberty to divulge his address prematurely. Interest in New Zealand and Australia is running high, and possible breakthroughs in energy technology should not come totally unexpected in these two countries with strong intellectual ties to England.

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## Conclusion

There is now overwhelming evidence for the actual existence of a very high density, energy rich space continuum formerly called "ether". This space energy can be concentrated, gathered, focused, magnified and compacted by magnets or magnetic materials, which appear as the new core materials for converters of all kinds, utilizing the cosmic energy for new technology applications.

Crystals are energy-sensing and channeling devices; they can serve as transducers, as for instance in the Moray-Device, or the "rock electricity" of T. T. Brown.

Combinations of crystals and magnetic materials appear to be the mainstay for the development of "hyper-space" - converters and generators of power - utilizing free, cosmic energy in our future.

Unbiased, totally honest and impartial reexamination and reevaluation of all scientific theorems and dogmas, as well as unhampered opportunities for the pioneers of the new technology on the American and European continent appear to be the prerequisite of success.

Those who accept that anything of the nature of ideas or ideology is permanent, use all their strength to hold on to it, and to condemn all who do not agree. The next stage of this spiritual illness of the mind is to build a monument to what they perceive is Truth, and then to build a monument to their own permanence in the world. This, they do by seeking fame or fortune, and authority over others. This is the contemporary, planetary psychology situation, and thus are we losing the gift of perspective and horizon and are no longer able to discern what is important. Skeptics are on record as saying:

"We are not running out of natural resources or intellectual talent, we are running out of the freedom of innovation that made the countries on the North American continent the most advanced nations on earth".

The future will show whether this freedom, which includes the freedom and the duty of taking risks, can be restored to the degree our Founding Fathers have been striving for. Only then will we know whether the late Wernher von Braun was not too overly optimistic when he stated:

"The cosmic age will bring a dawn of knowledge not yet envisioned. It will dwarf all our present knowledge and ideas and, through its vastness, may even bring men closer together on their own planet".

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GRAVITATIONAL AND ELECTROMAGNETIC ENERGY FROM CURVED ■  
SPACE-TIME: THE UNIVERSAL GRAVITATIONAL AND ELECTROMAGNETIC  
ENERGY-MOMENTA OF ANTISYMMETRIZED GENERAL RELATIVITY (AGR).

by

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KEYWORDS: antisymmetrized general relativity; gravitational and electromagnetic energy from curved space-time; universal gravitational and electromagnetic energy-momentum; higher symmetry electrodynamics.



Using general relativity extended by Clifford algebra (antisymmetrised general relativity (agr)) expressions are derived for the gravitational and electromagnetic energy inherent in curved space-time. By considering the interaction of one electron with the rest of the universe it is argued that the electromagnetic energy inherent in curved space-time (“universal electromagnetic energy-momentum”) can be extracted by the electron and used to produce current in a circuit. An example of this principle at work is the recently patented motionless electromagnetic generator.

## 1. INTRODUCTION

In general relativity, [ 1], the symmetric canonical energy momentum tensor  $T_{\mu\nu}$  is expressed in terms of Riemann geometry through Einstein’s field equation:

$$G_{\mu\nu} := R_{\mu\nu} - \frac{1}{2} R g_{\mu\nu} = k T_{\mu\nu} \quad (1)$$

where  $G_{\mu\nu}$  is the Einstein field tensor,  $k$  is the gravitational constant,  $R_{\mu\nu}$  is the Ricci tensor,  $R$  is the scalar curvature and  $g_{\mu\nu}$  is the metric *tensor*. Eqn. (1) is a field equation in ten unknowns, the elements of  $G_{\mu\nu}$ , and the equation shows that in the presence of matter, represented by the tensor  $T_{\mu\nu}$ , space-time becomes curved. The gravitational field is the Einstein tensor  $G_{\mu\nu}$ , and equation (1) shows that the field is the canonical energy-momentum of matter within a factor  $k$ . Therefore in the absence of matter (“the vacuum”) the gravitational field vanishes and space-time is Euclidean - the Christoffel symbols vanish and

with them the Riemann and Ricci tensor elements and the scalar curvature  $R$ . The

gravitational field must originate in something, and its origin is  $T_{\mu\nu}$ . Equation (1) is an energy-momentum balance equation between field and matter. It follows that space-time in the universe is always Riemannian, and never Euclidean, because in an Euclidean space-time the universe would be devoid of all matter.

Equation (1) could equally well be interpreted as indicating that matter fields are the result of curved space-time. In this view there are no point particles, and the symbol  $m$  for the mass of the electron is interpreted as a fundamental magnitude in physics. The electron is therefore represented by a matter field in which there are no singularities. The gravitational field mediates the gravitational interaction between matter fields, and there is always a coupling between matter field and gravitational field [2]. The gravitational field originates in one matter field and influences another matter field. The gravitational attraction between two electrons is explained in this way. The interaction between one electron and the rest of the universe is considered similarly, the electron is subjected to the net gravitational field generated by the rest of the universe, a field that is represented by curved space-time through the Einstein tensor  $G_{\mu\nu}$  generated by the rest of the universe. We refer to this as “universal gravitational energy-momentum”. The energy inherent in the gravitational field  $G_{\mu\nu}$  can be expressed as:

$$E_{\mu\nu}^{(s)} = \frac{1}{k} G_{\mu\nu} \quad - (2)$$

even in regions of the universe that appear to be devoid of observable matter. These regions must be distinguished carefully from the vacuum, which in general relativity is flat space-time. In general relativity, the electron can never be entirely free of the gravitational influence of the rest of the universe and can never be free of the influence of universal gravitational energy-momentum..

By using Clifford algebra in general relativity, in particular the space-time basis defined by the Pauli matrices [1], Sachs [2] has developed a unified field theory of gravitation and electromagnetism using the principles of general relativity. We refer to this classical unified theory of fields as antisymmetrised general relativity (agr). In agr the electromagnetic field is also space-time curvature, and the electromagnetic interaction between two electrons is mediated by space-time curvature in Riemann geometry. The electromagnetic interaction between one electron and the rest of the universe becomes conceptually the same as the gravitational interaction between one electron and the rest of the universe. It follows that the electron is never free of the electromagnetic influence of the rest of the universe, the “universal electromagnetic energy-momentum”. The latter produces electromagnetic energy momentum in the electron, producing charge-current density. The latter can be used to generate an observable current in a circuit. The source of this current is the canonical electromagnetic energy-momentum in the rest of the universe, and this source influences the electron through the electromagnetic field in agr. This process can be seen to work in devices such as the recently patented motionless electromagnetic generator [3]. The latter conserves energy-momentum and charge-current density in the universe, defined as the electron and the rest. On the simplest conceptual level, the motionless electromagnetic generator can be explained as a device that transforms the universal electromagnetic energy-momentum into a measurable current in a circuit.

## 2 EXTRACTION OF UNIVERSAL ELECTROMAGNETIC ENERGY-MOMENTUM BY ONE ELECTRON.

Consider one electron interacting with the universal gravitational and electromagnetic energy-momenta in antisymmetrized general relativity [2, 4-8]. These energy-momenta are represented by the four vector  $T_\rho$  in the Clifford algebra defined by

Sachs [2]. From  $T_{\rho}$  form the symmetric and anti-symmetric tensors:

$$T_{\rho\gamma}^{(S)} = T_{\rho} q_{\gamma}^* + q_{\gamma} T_{\rho}^* \quad (3)$$

$$T_{\rho\gamma}^{(A)} = T_{\rho} q_{\gamma}^* - q_{\gamma} T_{\rho}^* \quad (4)$$

where  $q_{\gamma}$  is the metric four vector of agr [2 4-8] and where  $q_{\gamma}^*$  is its quaternion conjugate, obtained from  $q_{\gamma}$  by reversing the sign of the space indices. Therefore in covariant-contravariant notation  $q_{\gamma}^* = q^{\gamma}$ .

In agr the gravitation field due to  $T_{\rho}$  is the symmetric (Einstein) tensor:

$$G_{\rho\gamma}^{(S)} = k T_{\rho\gamma}^{(S)} \quad (5)$$

and the electromagnetic field due to  $T_{\rho}$  is the anti-symmetric tensor:

$$G_{\rho\gamma}^{(A)} = Q k T_{\rho\gamma}^{(A)} \quad (6)$$

where  $Q$  is the Sachs constant with the units of magnetic flux (weber) [4-8]. The units of  $Q$  are therefore expressible as multiples of  $\hbar/e$  (the elementary fluxon, where  $\hbar$  is the Dirac constant and  $e$  the charge on the proton (the negative of the charge on the electron)).

The charge-current density produced in one electron by the universal electromagnetic energy-momentum is:

$$J_\gamma = D^\rho G_{\rho\gamma}(A) - (7a)$$

$$= \frac{Q}{4\pi} D^\rho (\tau_\rho v_\gamma^* - v_\gamma \tau_\rho^*) - (7b)$$

where  $D^\rho$  denotes the covariant derivative of Riemann geometry [2]. Equation (7a) is the inhomogeneous field equation of electromagnetism in agr. The accompanying homogeneous field equation is the Jacobi identity [2]:

$$D_\rho \tilde{G}^{\rho\gamma}(A) := 0$$

$$:= D_\lambda G^{\rho\gamma}(A) + D_\gamma G^{\lambda\rho}(A) - D G^{\gamma\lambda}(A) - (8)$$

where  $\tilde{G}^{\rho\gamma}(A)$  is the dual of  $G^{\rho\gamma}(A)$ . Eqns. (7) and (8) are not Maxwell Heaviside field equations, they are equations of agr in which space-time is always curved and in which the electromagnetic field, through eqn. (6) is a manifestation of curved space-time.

Under well-defined conditions [4-8] equations (7) and (8) reduce to those of O(3) electrodynamics [2, 4-8], which is a Yang-Mills gauge field theory of electrodynamics with internal gauge group symmetry O(3). It follows that O(3) electrodynamics is also a theory of general relativity. Maxwell Heaviside field theory is a Yang Mills gauge field theory with internal gauge group symmetry U(1) [1] and Maxwell Heaviside theory is a theory of special relativity (Euclidean space-time). The O(3) group has a higher symmetry content (e.g. more (three) group structure constants) than the U(1) group (one), and so O(3) electrodynamics and agr, from which it can be derived are referred generically as theories of "higher symmetry electrodynamics". It follows that there is no universal electromagnetic energy-momentum in

Maxwell Heaviside field theory, because space-time is flat.

The charge current density of the electron on the left hand side of equation ( 7 ) is obtained from the universal electromagnetic energy-momentum on the right hand side. Eqn. ( 7 ) describes a transfer of electromagnetic energy-momentum to the electron from the rest of the universe, a transfer which takes place in curved space-time. In this process the total energy-momentum and charge-current density in the universe is conserved and Noether's Theorem [ 1 ] therefore applies. The universal gravitational and electromagnetic energy-momenta are transferred to the electron by the field tensors  $G_{\rho\gamma}^{(s)}$  and  $G_{\rho\gamma}^{(A)}$  respectively,

defined in agr by [2]:

$$G_{\rho\gamma}^{(s)} = \frac{1}{4} \left( K_{\rho\lambda} \gamma^{\lambda} \gamma_{\gamma}^{*} - \gamma_{\gamma} \gamma^{\lambda*} K_{\rho\lambda} + \gamma^{\lambda} K_{\rho\lambda} \gamma_{\gamma}^{*} - \gamma_{\gamma} K_{\rho\lambda} \gamma^{\lambda*} \right) + \frac{1}{8} \left( \gamma_{\rho} \gamma_{\gamma}^{*} + \gamma_{\gamma} \gamma_{\rho}^{*} \right) R - (9)$$

$$G_{\rho\gamma}^{(A)} = Q \left( \frac{1}{4} \left( K_{\rho\lambda} \gamma^{\lambda} \gamma_{\gamma}^{*} + \gamma_{\gamma} \gamma^{\lambda*} K_{\rho\lambda} + \gamma^{\lambda} K_{\rho\lambda} \gamma_{\gamma}^{*} + \gamma_{\gamma} K_{\rho\lambda} \gamma^{\lambda*} \right) + \frac{1}{8} \left( \gamma_{\rho} \gamma_{\gamma}^{*} - \gamma_{\gamma} \gamma_{\rho}^{*} \right) R \right) - (10)$$

where  $K_{\rho\lambda}$  is the spin curvature tensor defined by the four curl of spin affine connections [2]

which can be constructed from the Christoffel symbols of Riemann geometry.

The gravitational energy momentum in the field tensor  $G_{\rho\gamma}^{(s)}$  is defined by:

$$E_{\rho\gamma}^{(s)} = \frac{1}{R} G_{\rho\gamma}^{(s)} - (11)$$

and the electromagnetic energy momentum in the tensor  $G_{\rho\gamma}^{(A)}$  is defined by:

$$E_{\rho^{\gamma}}^{(A)} = \frac{1}{Qk} G_{\rho^{\gamma}}^{(A)} - (12)$$

From eqns. ( 7 ) and ( 12 ) it is seen that the electron is always influenced by the universal electromagnetic energy-momentum, which produces in the electron the charge-current density:

$$J_{\gamma} = Qk D^{\rho} E_{\rho^{\gamma}}^{(A)} - (13)$$

The electron continues indefinitely to receive universal electromagnetic energy momentum without violation of Noether's Theorem. From eqn. ( 13 ) <sup>h</sup> the current density (for example in a circuit) produced by the electron is:

$$J_i = Qk D^{\rho} E_{\rho^i}^{(A)} - (14)$$

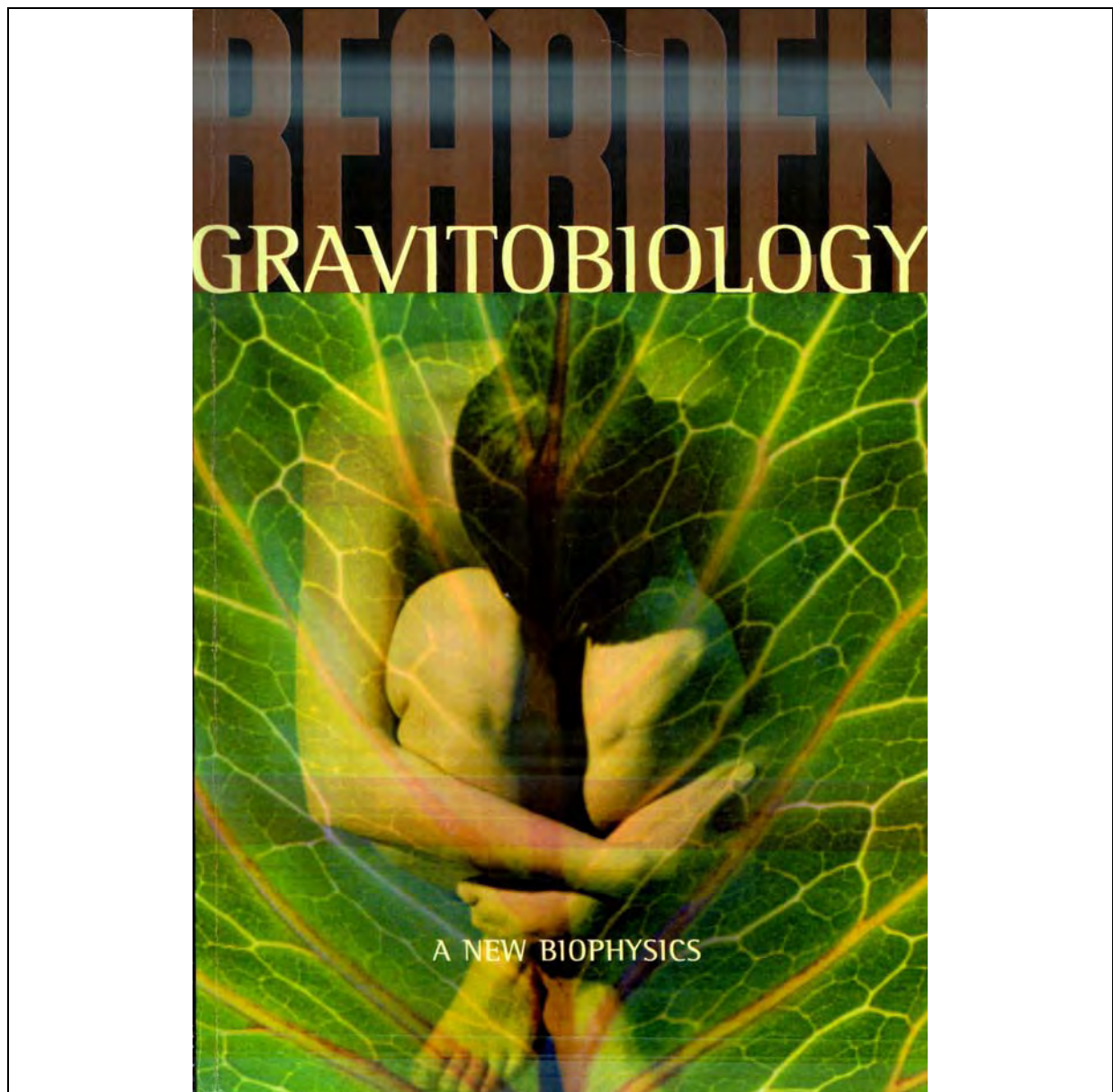
where  $i = 1, 2, 3$  denotes space indices.

So in a device such as the motionless electromagnetic generator [3] , the current is produced by  $E_{\rho^i}^{(A)}$ , which is curvature of space-time through eqns. ( 12 ) and ( 10 ). The transfer of curvature to current in a circuit continues indefinitely without violation of the laws of conservation of energy-momentum and charge-current density. This is observed experimentally in the MEG {3}, in which a current continues to be measurable when there is no apparent electromotive force, i.e. when the battery used to start it up is switched off a current continues to be observable.



## REFERENCES

- [1] L. H. Ryder, Quantum Field Theory, (Cambridge University Pres, 2<sup>nd</sup> ed., 1987, 1996).
- {2} M. Sachs in M. W. Evans (ed.), “Modern Non-linear Optics” a special topical issue of Advances in Chemical Physics, (Wiley Inter-science, New York, 2001, 2<sup>nd</sup> ed.), vol 119(1).
- {3} T. E. Bearden in ref. (2), vol. 119(2) and U.S. Patent no. 4 *def ai 15*: [www.cheniere.org](http://www.cheniere.org).
- {4} M. W. Evans, J.-P. Vigiér, S. Roy and S. Jeffers, The Enigmatic Photon (Kluwer, Dordrecht, 1994 to 2002, hardback and paperback) in five volumes. [www.aias.us](http://www.aias.us).
- {5} M. W. Evans and L. B. Crowell. “Classical and Quantum Electrodynamics and the B (3) Field” (World Scientific, Singapore, 2001). ~~[www.aias.us](http://www.aias.us)~~
- {6} T. W. Barrett, L. B. Crowell, M. W. Evans, D. Reed, B. Lehnert, and other authors, reviews on higher symmetry electrodynamics in ref. (2), vols. 119(1), 119(2) and 119(3). [www.aias.us](http://www.aias.us)
- {7} D. Clements and M. W. Evans, Phys.Lett. A to be submitted, (a perturbation solution of (3) agr for the B field). [www.aias.us](http://www.aias.us)
- {8} M. W. Evans et al., an AIAS paper on the derivation of the inverse Faraday effect from agr, Found.. Phys. Lett., in press, 2003. [www.aias.us](http://www.aias.us)



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Note: sometimes formatting of the text may be a little fuzzy. It's all because the OCR process didn't go as smoothly as I expected. Also there may be some errors inside text so be vigilant. In any case share this book, send emails to people about knowledge contained in it. This book should especially be interesting to any person in medical community as it provides a direct alternative to tablet based medicine of today.

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## Introduction

This may be the most important and far-reaching paper **that** this researcher has ever written. The knowledge and utilization of gravitobiology will profoundly alter the entire future of mankind.

The paper has been very difficult to write. It advances what — to the West — is an astounding breakthrough in understanding the mechanisms for the direct biological effects of Maxwellian electromagnetics.<sup>1</sup> However, one is given great pause at the sobering implications for both good and evil.

Although secretly well-known and highly developed in the Soviet Union for decades, this new technology ushers in a completely new area to the West: electrogravitobiology, or shortened, *gravitobiology* — which infolds and drastically extends present photobiology.<sup>2</sup>

Gravitobiology is the application of a unified field theory conception of electromagnetics (EM) and gravitation (G) to the total energetics exchanges (1) between a living organism and its external environment (interexchanges) and (2) inside the living organism and between, within, and among its parts and its whole (intra-exchanges).

Gravitobiology drastically changes the present reductionist view of photobiology, where *the whole is simply the sum of its parts*, and the superposition principle rigorously holds. In photobiology (and, in general, in ordinary physics), one specifies the externalized field/matter exchange on, between, and amongst the parts. Then it is assumed that one has specified the total action of the whole. On the other hand, in gravitobiology reductionism and superposition are only pale shadows of the total biological truth. Now one approaches a completely holographic situation: The part exchanges with and conditions the whole, and the whole exchanges with and conditions the part<sup>3</sup>

In gravitobiology, fundamental changes are made to two "untouchable" primary sciences: general relativity and quantum mechanics. In so doing, one unites and extends both of them into a common unified approach, and drastically enriches the present conception of the physical exchanges in, of, between, among, and within physical systems. The foundations changes to general relativity allow the incorporation of a hidden variable theory (the Whittaker internalized EM energy structure of the potential) without violation of Bell's theorem.

So First one must change general relativity. One must unite EM and G on the most fundamental level possible: that of the quantum particles of the fields.<sup>4</sup> The clue to the procedure is the fact that, in quantum field theory, the graviton has spin-2 and the photon has spin-1. This strongly suggests that two photons ought to couple together to produce a graviton, if the resultants of the E- and B-fields of the coupled photons are reduced to zero. In fact, such a bound (coupled, as in a standing wave) photon/antiphoton pair makes a basic spin-2 *graviton*.

However, in the vacuum, virtual photons are appearing (creation) and disappearing (annihilation) all the time, at incredible rates. Further, from the standpoint of GB we state that these virtual photons are also coupling (modulating each other) and decoupling (demodulating) all the time, again at an incredible rate. The virtual photons are coupling and decoupling (modulating and demodulating) with each other at such intense rapidity that to speak of a *fixed spin-2 coupling* ignores the fact that it is really only an averaged coupling that stably exists. Any number of photons can simultaneously modulate — and they do. And just as quickly, they decouple. Hence the number of instantaneously coupled photons at a point in the vacuum is

always dynamically changing over a very great range of values. Further, continual decoupling of these coupled photons also occurs with intense rapidity. The coupled-photon *ghost form* structures in the vacuum are always continually being annihilated, as well as created. In his fastest observation, of course, the macroscopic observer detects/observes the sum of a vast number of these virtual photon coupling/decouplings. He will thus detect *only the average coupling*.

The upshot is that *on the average*, the number of photons in each graviton may appear to the macroscopic observer to be stabilized at some value between zero and infinity, including *fractional* values. Further, one can now speak of the *distribution* of the coupled-photon ghost forms, and hence of graviton spin-value in local observer spacetime. One can also speak of the *relative density* of any particular local ghost form in the vacuum, seemingly the *instantaneous local density* of that ghost form with respect to the macroscopic observer.

One also can speak of the *reality density* of each ghost form in the local vacuum, with respect to its relative density vis a vis all the local coupled-photon ghost forms, during a unit time interval. For that particular form, one can also speak of its "Q" or *reality stability* — that is, how *sharply* (and hence how stably) something is real. As can be seen, this approach immediately affects our entire conception of virtual and observable physical realities and their relationships and interactions with each other. When a ghost form reaches a sharpness of one or more, it has reached/breached the threshold of observable quantum change, and is no longer just a virtual-state form. Further, we will shortly find that we can structure and engineer these virtual state coupled-photon ghost forms at will. In gravitobiology, *physical reality itself becomes deterministically tuneable, changeable, engineerable, and notfixed at all*. Physical reality is not like a stone, but rather it is like a stabilized bubble lightly floating on a rushing torrent of water. An *observably real* form is an equilibrium in the violent flux of the creation and annihilation of virtual state vacuum ghost forms of all kinds, such that it has sufficiently stable density to consistently breach the quantum threshold.

To show the basis for this graviton concept, several figures are required. Figure 1 shows the two kinds of EM energy: (1) translation (externally acting) EM energy and (2) stress (internally acting) EM energy. To first order, Figure 2 shows how we consider the photon as a single oscillation of a minimum observable monochromatic EM wave.

Figure 3 shows the coupled photon/antiphoton pair that comprises the basic graviton. On the average, uncurved spacetime is nominally composed of such spin-2 gravitons. To the first order, a spacetime composed of spin-2 gravitons is said to be *aflat* spacetime.

However, spacetime in a sense may be regarded as a conglomerate of potentials — including the scalar EM potentials. Therefore the simplest structure of *EM scalar potentials* (trapped EM energy) is also nominally composed of such spin-2 gravitons. Note that each of the coupled photons in the graviton may be constantly circling the other at nominal light speed tangentially, but the *graviton system itself* may be essentially stationary. In other words, the two trapped photons in a simple graviton are like whirling dervishes, spinning and running at top speed in non-translating circles.

Of course, the graviton system can also translate *as a system*.<sup>5</sup> Figure 4 shows this dynamic graviton system concept and Table 1 summarizes it.

In addition to spatial linkage of their hidden EM Whittaker wave contents, gravitons link or exchange contents via harmonic and subharmonic EM frequency chains. Thus one has photon communication (translation) between gravitons in two fashions: (1) *horizontally* (along spatial wavelength chains), and (2) *vertically* (via harmonic frequencies). Note that horizontal (wavelength) communication is linear, while harmonic (frequency) communication is nonlinear.



For that reason, linear media translate horizontally, passing a frequency without changing it; while nonlinear media translate vertically, changing a frequency that is passed.

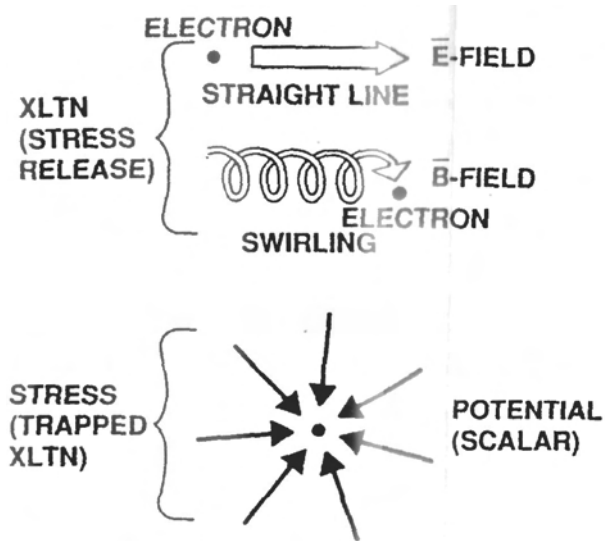


Figure 1. Two kinds of EM energy: Stress and translation. EM translation energy does external work. EM *stress* energy does internal work on the medium.

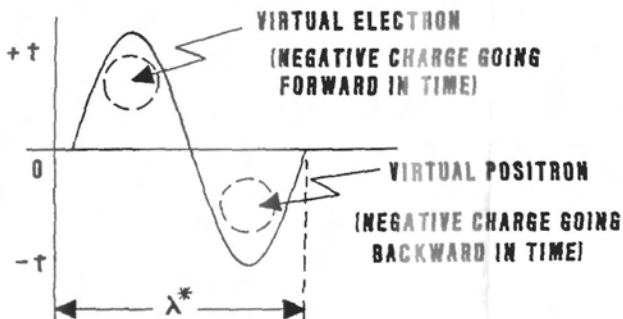


Figure 2. **The** photon as a single oscillation of a minimal carrier wave.

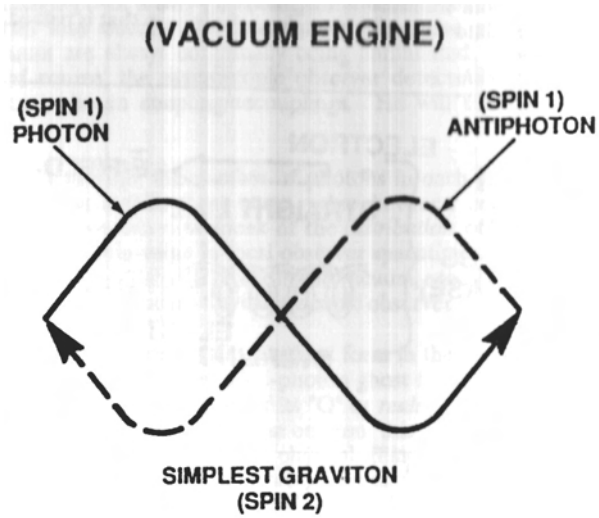


Figure 3. Coupled photon/antiphoton pair (simplest graviton).

## (VACUUM ENGINE)

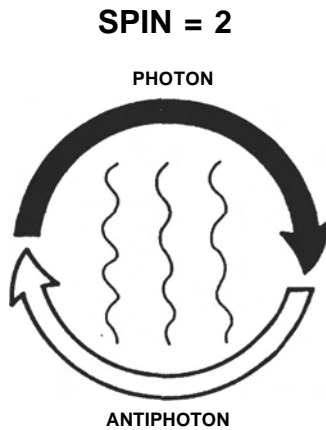


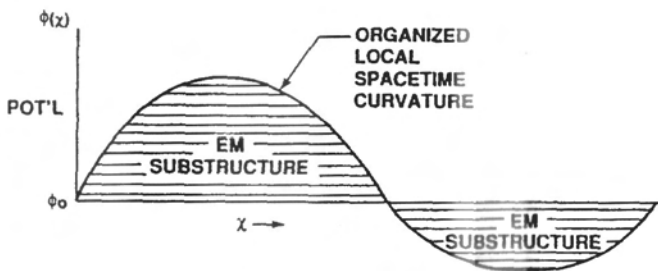
Figure 4. The potential is composed of gravitons, whose structures consist of bound photons and antiphotons.

Table 1. The graviton vacuum potential.

- **PHOTON TRANSLATES AT C**
- **SCALAR POTENTIAL IS STATIC**
  - **TRAPPED "CHARGE"**
  - **TRAPPED PHOTONS (VIRTUAL)**
- **HOW DO YOU TRAP A PHOTON?**
  - **MAKE A GRAVITON**
- **EM SCALAR POTENTIAL IS MADE OF GRAVITONS**
- **VACUUM/SPACETIME MEDIUM IS MADE OF GRAVITONS**
- **GRAVITON IS A PIECE OF VACUUM MEDIUM**

The scalar EM potential may be regarded as an infinite set of pairs of bidirectional EM planar waves, where the two members of each pair are multiplied together, totally *modulating* each other.<sup>6</sup> Figures 5,6, and 7 show this effect.

## (TESLA'S STANDING COLUMNAR WAVE)



NOTE: SHAPE MAY BE ALL ABOVE OR ALL BELOW  
AMBIENT VACUUM POTENTIAL.

Figure 5. The Whittaker standing potential wave.

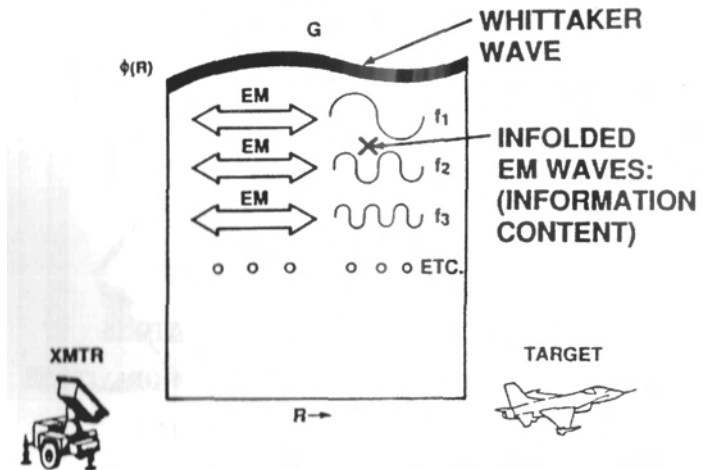


Figure 6. Infolded EM structure of the Whittaker beam.

(VACUUM ENGINE)

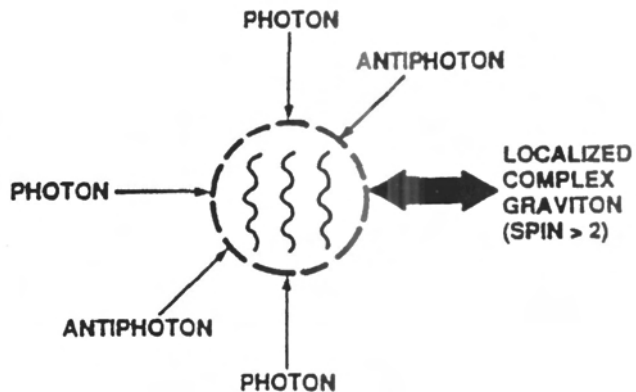


Figure 7. Destructive and constructive interference. Destructive interference of photons infolds them as EM structures inside gravitons; i.e., it constructs gravitons. Destructive interference of gravitons unfolds the internal EM structures; i.e., it constructs ordinary EM.

In a scalar EM potential the EM energy communicates vertically, which is harmonic translation of frequency energies, or time-wise. The time-wise two-wave EM energy communication represents a *stress upon the rate of flow of local observer time*; hence it represents *gravitational stress*. Further, the local rate of flow of time is determined by this local time-stress of vacuum potential. *One can easily engineer the harmonic bidirectional wave structure of the vacuum potential*. When one does so, then one also (1) curves local spacetime, (2) deterministically structures that local curvature with selected hidden-variable EM engines, (3) changes the local rate of flow of time, (4) gravitationally affects local systems, and (5) dynamically structures that local gravitational change to affect different system structures at will.

Immediately this graviton concept focuses intensive attention to the nonlinear aspects of the problem, and hence to modulation and demodulation. Nonlinear materials, after all, are materials which directly exhibit the production of harmonics from a fundamental, as shown in Figure 8. However, as previously pointed out, production of harmonics affects the time-stress and the local rate of flow of time in an area. This is a gravitational effect, and hence nonlinear EM actions contain gravitational action components. *Nonlinear materials can and do void the mutual exclusivity of the classical EM and G fields, and interact in a unified-field manner.*

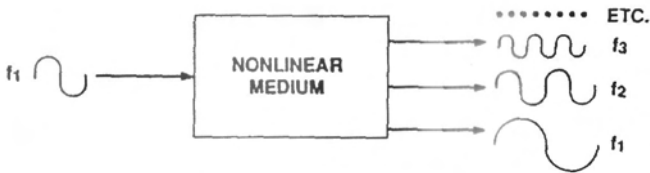


Figure 8. Nonlinear materials produce harmonics.

Also, in a true time-reversed situation, nonlinear materials can exhibit the production of a stronger fundamental from a combination of the fundamental and its harmonics, as shown in Figure 9. Thus there is a very clear difference between a true time-reversed EM wave and an ordinary EM wave with the same envelope and directional characteristics, contrary to most of the present treatments in physics.<sup>7</sup> The latter case, *pseudo-conjugation*, is not all true conjugation.

Figure 10 shows a comparison of phase conjugate mirror reflection and standard mirror reflection. Figure 11 shows the four-wave mixing concept by means of which the energy in pump waves  $A_1$  and  $A_2$  is utilized to produce an amplified phase conjugate replica wave  $A_3$  in response to the weak input signal wave  $A_4$ . This gives a powerful means for producing and amplifying the time-reversed wave.

So a graviton is regarded as *a particle (cell) of the vacuum and of the spacetime medium*. It is in fact any one of the *ghost forms* we previously referred to. But it is not a sternly fixed, quantized fundamental particle, in the sense presently used in physics. Instead, the graviton is like a

quivering balloon or jelly-like cell in the vacuum medium, with many input and output pipes (coupling and decoupling waves) in and out.<sup>8</sup> The instantaneous size and composition of the balloon (the *graviton cell*) depends upon a multiplicity of internal states and their exchanges. A relatively stable graviton cell — such as the nominal spin-2 graviton — represents only an envelope of the average equilibrium state of multi-photon coupling in a dynamic coupling and decoupling photon flux.

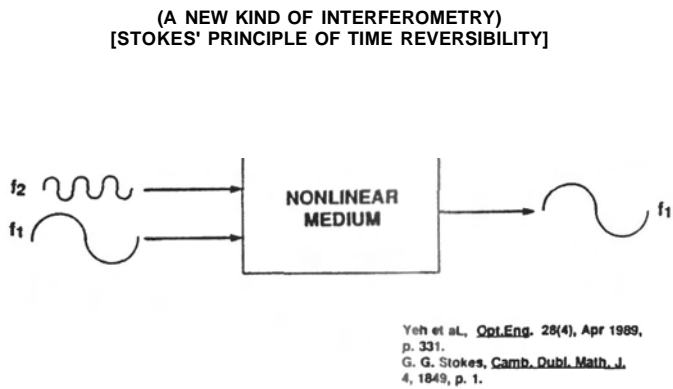


Figure 9. Time reversal of a fundamental plus harmonics can produce a stronger fundamental.

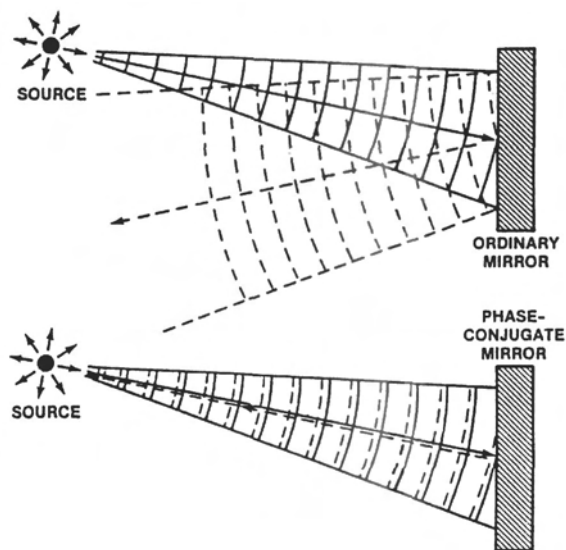
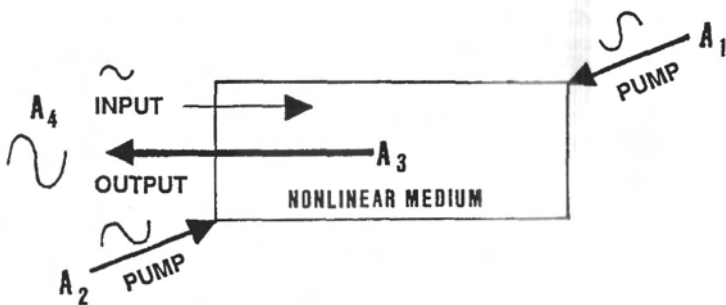


Figure 10. Ordinary mirror reflection versus phase conjugate mirror reflection.



**Figure 11. Pumped phase conjugate mirror (PPCM).** The PPCM material acts as a triode amplifier. Pumping and four-wave mixing allows strong amplification. The phase conjugate replica  $A_3$  of signal input  $A_4$  may contain up to all the energy in  $A_1$  and  $A_2$ .

Thus the graviton is the average coupled-photon structured cell of the local vacuum EM potential. When the graviton (average) spin is two, the local spacetime is flat and uncurved. *All that the concept of "flat spacetime" means is that the predominant average activity of the virtual photons of the local vacuum flux is simply the coupling and decoupling of pairs of single photons and single antiphotons.* When the graviton (average) spin is less than or greater than two, the local spacetime is curved, and EM and G are no longer mutually exclusive. Spin less than two gives curvature in one manner, and spin greater than two gives curvature in the opposite manner.<sup>9</sup> *All that the concept of "curved spacetime" means is that the predominant average activity of the virtual photons of the local vacuum flux involves either (1) increased decoupling and decreased coupling of photon/antiphoton pairs (negative curvature; graviton spin less than two), or (2) decreased decoupling and increased coupling of photon/antiphoton pairs (positive curvature; graviton spin more than two.)*

In quantum mechanics (QM), any EM frequency — even in a single quantum — now must be regarded as continually having internal dynamic exchanges subharmonically and harmonically. Indeed, each photon wavelength (single oscillation) must be considered as a graviton cell having **its** own spectral content. At the same time, it is also a part of the spectral content of many other **graviton** cells. Note that this describes a holographic connection and interaction. It also accounts for the fact that the photon stubbornly refuses to act solely as a simple, localized particle. One therefore regards photons as single-wavelengths of waves, to the first order. One regards the vacuum as composed of harmonic bidirectional wave structures, always marvelously and dynamically varying at incredible rapidity. This photon-structured vacuum permits the inclusion of internalized ordered-photon structure in spacetime, *in quantum change itself*.

Accordingly, the fundamental QM postulate that quantum change is random must be changed. Since there now may exist hidden subquantal and quantal orders within the randomness, the altered postulate must state that quantum change is *chaotic*. This produces an *already chaotic* quantum mechanics, and resolves one of its most pressing foundations difficulties: that of the missing chaos.<sup>10</sup>

It turns out that these changes to GR and QM unite them into a single unified conceptual approach. However, they also implement to the hilt a vital hidden variable theory and a graviton-

structured potential, to include the *quantum potential* (see Table 2 and Table 3), which can yield action at a distance. Now nonlocal effects are also subject to deterministic engineering.<sup>11</sup>

Table 2. Quantum Potential (QP) Characteristics.

- NO POINT SOURCE
- NOT RADIATED
- QP BETWEEN TWO PARTICLES
  - INTERACTION DOES NOT VANISH AS SPATIAL SEPARATION BECOMES VERY LARGE
  - INSTANTANEOUS CONNECTION
- DEPENDS ON QUANTUM STATE OF SYSTEM AS A WHOLE
- SYSTEM PARTS CAN BE GREATLY SEPARATED

Table 3. Hidden Variable Theory Quantum Potential.

- $V_{\text{quantum}} = (\hbar^2/2m) \frac{\nabla^2 \sqrt{\rho}}{\sqrt{\rho}}$
- "A QUANTUM PARTICLE MOVES AS IF IT WERE SUBJECT, IN ADDITION TO EXTERNAL POTENTIALS, TO A POTENTIAL WHICH IS A FUNCTION OF ITS OWN PROBABILITY DISTRIBUTION.
- BOHM'S H.V.T. ASSUMES
  - PARTICLE AND WAVE FUNCTION REAL AND SEPARATE
  - WAVE FUNCTION OBEYS SHROEDINGER'S EQUATION
  - PARTICLE OBEYS CLASSICAL MECHANICS
  - PARTICLE COUPLES TO WAVE FUNCTION THROUGH A QUANTUM POTENTIAL

LEE SMOLIN, "STOCHASTIC MECHANICS, HIDDEN VARIABLES, AND GRAVITY," QUANTUM CONCEPTS IN SPACE AND TIME, PENROSE/ISHAM, EDS. CLARENDON PRESS, OXFORD, 1986, PG. 165-166.



By far the most significant EM biological effects occurring in and on a biological system are due to its gravitobiological (internalized multi-photonic) exchanges. There are great differences between single-photon (monochromatic) interactions and multi-photon interactions. A priori the very notion — and the physical selection — of a monochromatic single photon interaction assumes that the multiphoton coupling of the graviton has already been destroyed. This discards any notion of a consistent and persistent graviton structure, since a monochromatic photon does not independently exist until its *coupling shell* graviton is destroyed or excluded. Spectral (harmonics) interactions, on the other hand, may well involve substantial and profound multiphoton, infolding, and unfolding effects that do not appear at all in monochromatic interactions. *A dramatic extension of photobiology is involved in gravitobiology.*

In the new model, permissibly the linked internal structure of spacetime may be partially ordered deterministically. This internally structured spacetime<sup>12</sup> underlies quantum change itself and is available for dynamic utilization and manipulation by living systems. This is particularly significant since the living system, its cells, and all its subcellular and multicellular parts deliberately utilize deterministic *internal* communication (Whittaker photon exchange) through the medium of the *hidden* internal EM photon structures of stabilized gravitons comprising scalar potentials. In short, for its living communication and control of both mental and physical processes, the biological system utilizes *internalized EM energy* in hidden harmonic Whittaker photon channels inside scalar potentials.<sup>13</sup>

Of course, externally one can also directly engineer a harmonic photon/wave structure and infold it as a hidden stress pattern structuring of Whittaker potentials. Such externally engineered Whittaker/Devyatkov signals provide a totally new and startling capability to directly and deterministically enter into all the biological organism's hidden internal control and communications systems — both physical and mental. With this approach, all internal living biophysical and biomental processes are now open to external engineering, manipulation, and control. Further, this is already well-known to the Soviets as evidenced by the work of Devyatkov,<sup>14</sup> Kaznacheyev,<sup>15</sup> and others.<sup>16</sup>

We strongly point out that gravitobiology deals with the dynamic structuring, tailoring, and engineering of the vacuum state itself — including the virtual state, spacetime, and subquantal and quantal change. Since all physical observables may be regarded as *collections or integrations* of subquantal and quantal changes, *we are now dealing with the ability to directly structure, tailor, manipulate, and engineer physical reality itself.* Also note particularly that the *living* aspects of a biosystem — mind, thoughts, memories, lives, emotions, personality, etc. — themselves may be regarded as equilibria and dynamic structures in the deeper nested levels of the virtual particle flux of vacuum/spacetime.<sup>17</sup> We have long pointed out that mind and matter share one "real" dimension in common: that of *time*. In structuring the vacuum and the curvature of spacetime, one is also producing a substructure in *time itself* — in both mind and matter. Accordingly, vacuum engineering (gravitobiology) implies that *we are also dealing with the ability to directly structure, tailor, manipulate, and engineer mind, emotions, personality, deeper mental reality, and life itself.*

The implications for technology development — and consequently for humanity itself — are awesome, both for good and for evil. For the good, we now see a breathtaking vista where a simple, cheap, and ready "cure" for almost any disease or health disorder will eventually become available. We see eventually the direct capability to access such heretofore excluded areas as all conscious and unconscious mental functioning, emotions, intelligence, memory (both short term and long term), and personality itself. *Eventually education will be by direct loading of the proper "software".* Even a severe personality disorder will be directly and quickly correctable. Even more astounding, it should be possible to reverse the aging process itself. Also note that, quantum mechanically, mechanics is electromagnetic at its basis, since exchange of virtual photons generates all mechanical **forces**. Thus even the mechanical aspects of disease —

crippling, twisted spines, shortened and gnarled limbs, physical malfunctions, physical defects, etc. — all will be directly treatable and curable.

For the bad, we see a mind-numbing vista where men can (the Soviets already have done so) utilize electrogravitobiology (EGB) for terrible new mass weapons of *electromagnetic biological warfare* (EMBW). The means for ultimate human enslavement — absolute mental manipulation and control from external means — can be developed, and this will certainly be noticed by would-be dictators and meglomaniacs.

The ability to develop and utilize EM disease-inducing and immediate death-inducing scalar EM weapons has already been developed by the Soviet Union in secret KGB laboratories. We will not dwell extensively on the potential horrors of such EM BW warfare. With the new weapons any nation on earth can be devastated — physically, mentally, or both — relatively simply and in short order, with tens and even hundreds of millions of prompt casualties. We point out that small tactical EM BW "death ray" weapons have already been clandestinely tested by the Soviets in Afghanistan, accounting for the *smerch* or instant-kill "nerve gas attacks" — so called.<sup>18</sup> When a body was struck by this weapon, not a single twitch or movement resulted in it thereafter, ever again. Not a single nerve impulse firing occurred, ever again, in the struck body. Every cell, bacterium, virus, paramecium, etc. in the entire body was instantly dead. The body simply fell like a limp dishrag and lay crumpled and still where it fell. A decisive signature of this weapon was that, with every cell and bacterium dead, the dead bodies did not decay for a very extended period (even 30 days) — precisely as if they had been deeply irradiated with cobalt-60 nuclear (gamma) radiation. No gas or chemical attack can do that.

The weapons vista for this entire area — which the Soviet refer to overall as *energetics*, is sobering. Khrushchev himself stated to the Presidium in 1960 that these new, fantastic weapons then in Soviet development could wipe out all life on earth if unrestrainedly used.<sup>19</sup> One strongly suspects that Khrushchev was referring to the EM BW directed energy weapon (DEW) aspects of energetics.

In the 1975 SALT Talks, Leonid Brezhnev even tried to get an agreement for banning the development of such new mass weapons. He personally met with visiting Senators and other Congressional leaders to point out the pressing and urgent need for limitations on these new weapons.<sup>20</sup> In fact, he called them weapons "*...more frightful than the mind of man has ever imagined.*" That same year, Gromyko introduced to the United Nations General Assembly a draft treaty for the ban of these mass destruction weapons, and urged the nations of the world to sign it as a most urgent matter.<sup>21</sup>

*Unfortunately, the rest of the world simply did not understand what the Russians were talking about*

Thus one has great qualms — and much personal anguish — when even approaching this gruesome area. Certainly that is true for this analyst. Were it not for the fact that the Soviets have already discovered and highly weaponized these EM BW effects, I most certainly would turn my attention firmly away from this entire area.

However, such frightful EM BW DEW weapons *have* already been secretly developed and deployed by the Soviets. For over three decades they have used our reaction or nonreaction to the weak EM BW against personnel in the U.S. Embassy in Moscow<sup>22</sup> to gauge our knowledge — or *lack* of it — of unified EM/G biological warfare. In the nearly unthinkable event that war should break out between the Soviet Union and the West, the West will simply be immediately devastated by these eerie, mind-numbing EM BW weapons before it even knows what hit it. *When we have absolutely no counters, such attack becomes a preferred Soviet option and very likely.* A wide range of options is available to the Soviet Union in utilization of both EM BW DEWs and conventional BW agents. Clandestine, slow BW attacks can be so insidiously hidden and

cleverly employed that the Western nations — because of their present scientific and intelligence shortfalls and biases — will not even comprehend that the BW "slow strike" — on several fronts and employing differing agents and methodologies — was deliberate, until it is far too late to do anything about it

I firmly believe that, one way or another, such a clandestine "slow biological warfare strike", using viral and bacteriological agents and EM BW DEW augmentation as well — is already well underway against us. Further, it is still totally unrecognized as such by the West.<sup>23</sup>

Nonetheless, there is still great hope. If this nation wakes from its lethargy and puts its mind to it, gravitobiology can be quickly developed. Slow (and even prompt) BW attack can then easily be countered. *Unless gravitobiology is developed, we do not have now, and we shall not have in the foreseeable future, any effective defenses whatsoever to a BW attack, whether clandestine or open, and whether by conventional BW agents or EM BW DEWs.*

The scientific and engineering mindset and the need for a little highly unorthodox EM/G effort is all that presently blocks us from quickly achieving sufficient defensive capabilities for parity in this absolutely vital area.

Leaving the weapons aside for a moment, the new technology's positive benefits to mankind can be enormous — *"far more beneficial than the mind of man has ever imagined,"* to paraphrase Brezhnev. The control and vanquishing of all the ravaging illnesses and diseases is there, available for us to develop and employ for the benefit of everyone on earth, and for our children yet to come.<sup>24</sup> The vista of complete and thorough education for everyone — economically and universally available — is also something that has never existed but will now become possible, since eventually the necessary software and operating systems for any human skill or field can be directly loaded, so to speak.

With a developed knowledge of the external and internal energy balances of our biosphere, we can clean up the biosphere, permanently rid ourselves and our children of poisonous chemical and nuclear wastes, and restore the vitality of the planet for our living health and enjoyment

But make no mistake: This technology will give us the capability to engineer reality itself—both physical reality, life, and mind. *And we will be able to engineer it to be either a heaven or a hell; the choice is strictly up to us.*

Faced with the looming advent of this new science, certain of my associates and I have striven over the last four years to obtain funding for a major research institute, to develop scalar EM, gravitobiology, and novel energy and antigravity devices for the betterment of mankind. However, all our efforts have been thwarted. It has become increasingly apparent that the present scientific and control mindsets are so strongly entrenched, and so dedicated to suppressing any such attempt to break the economic and technological stranglehold on our citizenry, that the vision of such an institute is just a dream and not to be taken seriously.

Consequently, I have reluctantly concluded that this information must be openly released, for that is the only remaining way to overcome the solid barrier against the new technology and its benevolent use for humankind. I believe that a well-informed, concerned citizen is also a good thing for democracy and our free way of government. At least if there are frightful dangers facing us and terrible reefs to be avoided, *let us know what the dangers are and where the reefs are.*

In that vein, this paper is reluctantly written and circulated. This technology — of which only a tiny glimpse is provided here — is truly *a force amplifier* of vast gain. It is a massive amplifier for both good and evil, for any knife cuts both ways. How any tool is *utilized* depends upon the hand

and intent of the user, not upon the tool itself. Every tool is amoral, and only humans apply it morally or immorally.

Gravitobiology conceptually points the way to unleashing some of the most formidable tools ever conceived. Let us fervently pray that wisdom will prevail and these new tools will be utilized for Man's good, to heal him and not to kill him.

Man is upon the threshold of a crisis between the good and evil sides of his nature that is unparalleled in all human history. Whatever the reader's faith, I ask for your prayers. Most assuredly they will be sorely needed in the days to come.

Tom Bearden

January 1991

## Woodpeckers: A Soviet Bicentennial Present to the U.S.

On July 4, 1976 the Soviet Union presented the United States of America with a most unusual bicentennial present: On that date, extremely powerful Soviet transmitters were energized in the communications band (3-30 MHz), causing interference with communications all over the world. The "chirped" signals of the new transmitters gave them a most peculiar sound, very much like that of a woodpecker's beak striking a flat block of wood. HAM operators immediately dubbed these new monster transmitters "*Woodpeckers*." Official protests by the various nations did little good. The Soviets insisted that the Woodpecker transmitters were "experimental" and necessary. The Woodpecker transmitters continued to pour out their bothersome worldwide interference, and they do so to this day.

## Misidentification as an OTH Radar

The U.S. Department of Defense (DOD) scientists and engineers proclaimed the new monster Soviet transmitters to be simply *over-the-horizon (OTH) radar transmitters*. Of course, signals in the communication band will reflect off the earth's ionosphere, so that the signals can be transmitted beyond the radio horizon, reflecting around the earth in multiple bounces within the earth-ionospheric wave guide. For that reason, OTH radars commonly utilize one or more such frequencies. However, there are certain fairly stringent limitations on an OTH radar that are evidenced in its signals. While the Woodpeckers usually exhibit those characteristics, often they also exhibit a great many other characteristics that would be useless or even detrimental to purely OTH radar functioning. Therefore the consensus among many analysts — including, for example, one or more of our most knowledgeable OTH radar experts — is that the Woodpeckers *can* function as OTH radars if need be, but their primary purpose appears to be far more complicated than OTH radar sensing and ranging.<sup>25</sup> Officially, however, the U.S. Department of Defense and the U.S. intelligence communities still label the Soviet Woodpeckers as OTH radars.

## Immediate Weather Engineering Over North America

For the next decade after the initial operational capability (IOC) advent of the Soviet Woodpeckers in 1976, the weather over North America was highly anomalous. In fact, the prestigious journal *Science* eventually pointed out that such an anomalous weather decade could be expected only once in 1200 years.<sup>26</sup> During this anomalous decade, of course, the Woodpecker transmitters were very active. Indeed, their beams regularly intersected over the United States in an interference "grid."<sup>27</sup> Finer interferometry patterns within this overall interference "grid" were used to create and move high pressure and low pressure areas over desired areas in the U.S., steering and controlling the giant jetstreams over the U.S. and directing the course of U.S. weather. The present author has fully documented and explained the use of the Woodpeckers in the weather control mode.<sup>28</sup> Further, we have long documented the use of the Woodpeckers as highly unusual directed energy weapons.<sup>29</sup> In addition, we have pointed out the Soviet capability to utilize the Woodpecker weapon systems to produce biological effects,<sup>30,31</sup> but have not heretofore given a full explanation of the exact EM mechanism for that capability. In this paper we present a more technical explanation of the biological effects of scalar electromagnetics — including as utilized by Soviet weapon systems such as the 14-year-old Woodpeckers, and the decades-long Soviet microwave radiation of personnel in the U.S. Embassy in Moscow. For details of the Embassy radiation, see Brodeur,<sup>32</sup> Johns Hopkins

University's study of the **health status of Embassy penonnel**,<sup>33</sup> The U.S. Commerce Department's funded study of **the radiation**,<sup>34</sup> **and other references**.<sup>35</sup>

### **Given a Dose of Their Own Medicine**

After some time, the aggravated HAM operators banded together and formed a group action. Many of them recorded the Woodpecker's signals on tape and, at a prearranged time, suddenly turned **all** their transmitters on with the tapes playing, transmitting back to the Woodpecker receivers the taped replicas of their own jamming signals. The woodpecker transmitters were observed to become confused. They frantically changed channels and desperately tried to avoid the HAM operators' transmitted replica signals. Unable to do so, finally the Woodpeckers went off the air completely. Thereafter a modicum of caution began to be utilized by the Woodpeckers. They changed channels frequently so as not to "jam" one HAM channel continually, and substantially decreased their degree of interference with other communications equipments. Also, electronic filters to add on to one's receiver and filter out the Woodpecker's annoying "chirps" were produced in the West and made available to HAM operators and other communications groups. An uneasy truce resulted, and there the matter rests today, insofar as communications is concerned. The Woodpeckers have continued to operate at will.

### **Launch-Phase Antibomber and Antimissile Weapons**

In latter 1985 and early 1986, the Soviet Union employed the internalized EM energy capabilities of the Woodpecker weapon systems to directly attack, disable, and destroy a series of U.S. aircraft and missiles. (We shall address internalized EM energy shortly.). We have previously documented these overt Soviet acts of war<sup>36</sup> and will not repeat that documentation here. We have also pointed out that 1985 was the specific Soviet target year to have all these weapons online and ready to go, as specifically stated by Leonid Brezhnev at a secret meeting of European Communist Party Leaders in Prague in 1972.<sup>37</sup> Indeed, at that time Brezhnev actually confirmed that detente was part of a deliberate Soviet deception plan.<sup>38</sup>

### **How This Paper Came About**

Recently a frequent correspondent who is knowledgeable in HAM radio — and well familiar with the annoyance of interfering signals from the powerful Soviet Woodpecker transmitters in the communications band (3-30 MHz) — sent me a Federal Communications Commission (FCC) compilation of Soviet Woodpecker signal radiations and requested my comments. The editor of an important journal in England also urgently requested more definitive information on the Woodpecker's biological warfare capabilities. I quickly dashed off short responses to these two correspondents, but I realized that the biological capabilities of EM transmitters, including the Woodpeckers, required a more lengthy paper to provide an adequate explanation.

This paper is a much-expanded version of my responses to those two correspondents. Its purpose is to more fully reveal precisely how the Soviets can utilize EM transmitters such as the Woodpeckers to transmit biological effects — including *any kind of cellular death or disease whatsoever*— and induce and create these effects in a targeted distant population. In this paper we will detail some of the powerful electromagnetic (EM) biological warfare (BW) capabilities of electromagnetic transmitters, including the Woodpecker weapons systems. This will complete our expose of the unsuspected capabilities of the Woodpeckers.

## Start With These References

First the concerned U.S. scientist should recognize that Soviet scientists — particularly those who work on highly secret Soviet EM biological warfare weapons projects — do not utilize the type of biophysics known to Western scientists. Instead, they have applied a unified EM/G field theory, called *energetics*, to photobiology and created a new, highly classified Soviet biophysics which this author refers to as *gravitobiology*. Accordingly, to understand the real, classified Soviet biophysics, the concerned U.S. scientist must be prepared to (1) acquire extensive new knowledge and a drastically different technical viewpoint, (2) search Western orthodox and unorthodox scientific literature in photobiology and unified quantum field theory physics, to discover potential candidate areas that the Soviets may have developed and applied, and (3) look behind the deliberate deception involved in most openly published Soviet biophysics papers and search for possible significant clues.

First, he or she should read and digest the two Whittaker papers,<sup>39,40</sup> ponder what is meant by Devyatkov's *information content of the field*<sup>41,42</sup> in light of Whittaker's infolded EM structuring of the scalar potential, and Kaznacheyev's extensive cytopathogenic work in EM induction of cellular death and disease at a distance.<sup>43,44</sup> Next he or she should study the implications of time-reversal in physics,<sup>45</sup> and the potential implications of utilizing in biology the time-reversed (phase conjugated) EM waves<sup>46</sup> which the U.S. discovered in the open Soviet scientific literature in the late 1960s and early 1970s. Finally, he or she should study the photobiology work of West German scientists such as Popp.<sup>47,48</sup> Those references should be studied first. Then he or she should study in detail the difference between Heaviside's/Gibbs's vector EM curtailment of Maxwell's theory<sup>49,50</sup> and the original quaternion Maxwell theory,<sup>51</sup> because the Heaviside/Gibbs theory (the present classical EM theory) is only a subset of Maxwell's actual *unified EM/G field theory*.<sup>52</sup> Finally, by combining all this information and reiterating the study of the reference material until it can be successfully integrated in one's understanding, one has the basis of the "whole banana" of Soviet gravitobiology, so to speak.

One then has the basis of unified EM/G theory (energetics) with which the Soviets started some 40 years ago — and the beginning of which Maxwell had already published in 1873. From that foundation, it's not too terribly difficult for a good laboratory team to piece together the theory — and gradually develop practical, working hardware on the laboratory bench.

## Technical Basis for Soviet EM Biological Warfare

Our scientists in the State Department, DoD, CIA, DIA, FCC and other U.S. governmental agencies are never going to understand the full biological warfare (BW) capabilities of electromagnetic transmitters such as the Woodpeckers — or develop new instruments to measure what specific biological information their signals really contain — until they understand *scalar electromagnetics*. Ordinary (classical) electromagnetics was produced by Heaviside and Gibbs in a *substantially truncated* version of Maxwell's true quaternion EM theory, as previously pointed out<sup>53</sup> by this author.<sup>54</sup>

Ordinary EM (and its *externalized* energy) cannot exhibit the capabilities we are referring to, or produce such "biological death and disease ray" results as are possible with specialized scalar EM transmitters. Instead, one must recover and utilize the scalar part of Maxwell's quaternion EM **theory** — the portion that was discarded by Heaviside and Gibbs.

Maxwell's original theory was a unified theory of EM and gravity (G), with the electrogravitational aspects being captured by infolding functions of the vector E and B force

fields inside the scalar component of the quaternion.<sup>55</sup> Thus Maxwell's quaternion theory, for example, also prescribed scalar waves of pure potential (trapped) EM energy, where this potential energy contained hidden, deterministically structured, *internal* bidirectional EM wave patterns — yet no external E- and B-field force resultants appeared in the overall vector summation envelope.<sup>56</sup> This can readily be seen by simple examination of the scalar component of the quaternion.<sup>57</sup> This pure *scalar potential (wave)* with a hidden deterministic EM wave substructure aspect was completely discarded by Heaviside and Gibbs. It is still discarded by classical vector electromagnetics theory today, even though it is experimentally verifiable and testable — and *engineerable*.

Scalar EM,<sup>58</sup> however, is a unified field theory of electromagnetics and gravitation, since it recaptures the scalar wave portion of electromagnetics that was erroneously discarded by Heaviside and Gibbs. In short, scalar EM captures, infolds, and hides deterministic EM waves inside EM scalar potentials — and also then interferes the structured scalar potentials to outfold the EM energy and recover it at a distance. That distant interference recovery, however, can be in the form of either negative (time-reversed) or positive EM energy, merely by how one biases the ground potential of the scalar interferometer relative to the ambient potential in the distant interference region.

Since it is known that potentials are gravitational (they are composed of trapped energy and energy is gravitational), then scalar EM is a unified field theory of electromagnetics and gravitation. Obviously these unified scalar fields with their hidden internal structures<sup>59</sup> have a great many more capabilities and uses than do the far more restricted classical EM force fields.

For four decades the Soviets have secretly developed this scalar EM/G theory and technology — which they call *energetics* — and have used it to develop and deploy secret unified field theory (UFT) superweapons of enormous power and startling capabilities.<sup>60,61</sup>

## Biological Implications

The infolded, deterministic, hidden EM wave structure inside the scalar EM potential is called the *information content of the field* by Soviet scientists.<sup>62,63</sup> The Soviets know that it is this infolded and hidden EM structure — the *internalized* or *covert* EM energy of the potential field — that is deterministically utilized by living biological systems in all their cellular control and regulatory functions. Thus by deliberately manipulating this internalized EM energy structure of the scalar EM potential, the Soviets have found it possible to accomplish astounding EM biological effects — both for healing and for biological warfare — that are entirely undreamed of in the West.<sup>64</sup> The Soviet energetics technology can manipulate, change, control, or destroy literally any of the key biological functions of the living system — including *mental* and *behavioral* functions.

## Internal and External EM Energy

In his 1903 Mathematische Annalen paper,<sup>65</sup> Whittaker demonstrates a standing, spatially-fixed wave of pure potential, but one with an infolded, highly dynamic, hidden EM forcefield substructure containing *hidden* bidirectional pairs of EM waves/energy. Again, see Figure 6 for a diagrammatic portrayal of this Whittaker wave (scalar EM wave).

In the diagram, in each pair of infolded EM waves, the two coupled waves flow in opposite directions *inside the standing potential wave*. Further, their speed is not limited to the normal



speed of light in vacuum.<sup>66</sup> In each pair, the two waves are multiplied together. Hence they *modulate* each other, locking together into graviton waves rather than photon waves.<sup>67</sup> *Each paired EM planar wave couplet is a hidden EM stress energy channel in vacuum spacetime, and in this channel EM energy flows in either direction — in fact, in both directions at once.* Further, there is continual constructive and destructive interference of these two waves, yielding continual coupling into pairs of photons and decoupling into photon/antiphoton pairs. In short, continual creation and annihilation of spin-2 gravitons is occurring. *A scalar potential, then, is composed of this dynamic structure.* Taking the Whittaker approach to the lowest level possible, this author has previously presented a unified field development of photon/antiphoton structures inside gravitons, unifying gravitation and electromagnetics at the most fundamental level — that of the quantum particles of the fields.<sup>68</sup> Figures 1,2,3, and 4 developed this *unified particles* approach.

The bottom line is this: There are two fundamental kinds of electromagnetic energy: (1) First, there is *externalized* EM energy. This is the normal "wave envelope" EM force field translation energy that acts externally upon each charged particle, to translate the particle as a single unit. The resulting unitary changes (translations) of charged particles *as wholes* produce the normal EM interactions upon things and objects, as seen by the external observer. Indeed, this process is external observation, and external observation is this process. (2) Second, there is also *internalized* EM energy, where EM forces act in antiparallel pairs. This *EM stress energypattern acts* internally upon a charged particle or medium, specifically structuring the virtual particle flux exchange of the particle with the vacuum, or of the medium with the vacuum. This vacuum exchange with the particle, of course, constitutes the *charge* of the particle. The electric charge of a particle is due to the exchange of virtual photons between the vacuum and the mass of the particle. Note that the Whittaker structure represents deterministic structuring of this vacuum exchange with the mass of the charged particle. *It represents deterministic structuring of massless electric flux itself, in electromagnetic terms, and this does not presently appear in electrical physics theory.* Instead, orthodox theory *assumes* that the structuring is random, when in fact it is not — from Whittaker's work.

Western scientists do not normally even detect or recognize this internalized EM energy. Our instruments normally see only the gross static EM potential energy by actualizing it into gradients (force-fields) that translate charged particles.

External EM energy is the face that the scalar EM potential exhibits in its outer bulk interactions with gross matter. Internal EM energy is the face that the scalar EM potential exhibits in its inner interactions with the virtual particle flux of the vacuum — and with every charged particle in the universe, *most especially with the charged particles in the nuclei of atoms.*

Internal EM energy is the infolded EM stress energy inside the vacuum potential. Note that all scalar EM potentials are vacuum potentials. Deterministically structuring the infolded EM planar waves in the Whittaker structure of the vacuum potential is *vacuum engineering*.<sup>69</sup> It is also structuring the local spacetime, and curving it whenever the Whittaker potential differs from the potential of ambient vacuum/spacetime.

In our present engineering, at best we see only the gross envelope or bulk translation energy (overall charging or draining energy) of the EM potential (trapped EM energy) that was exhibited by translating charged particles. We never detect the dynamic, hidden, bidirectional-wave EM substructure content and interactions of the EM vacuum potential. This undetected internalized EM energy that is infolded inside the scalar potential is electrogravitational energy, **since** all EM potentials are gravitational in nature, as is well-known.<sup>70</sup>

## Vacuum Engineering and Activation

Note that the vacuum/spacetime consists *only* of internalized (infolded) (virtual) energy. Everything — every particle, wave, etc. — that exists or moves in the vacuum continually *internally* exchanges with the vacuum flux, since in fact every entity itself is only a special kind of equilibrium state in this vacuum flux. Everything, so to speak, is simply a special kind of fragile balloon in a many-pipe flow situation.

If the vacuum that an entity exists or moves in is deterministically structured, the vacuum exchange with the internal energy of the entity is structured. Just as changing the colors of the flows into and out of the balloon will gradually change the color of the balloon, the entity, will gradually "charge up" its internal energy to any persistent change in the vacuum's virtual particle flux. This charging process is called *activation*. If the vacuum exchange then changes back to normal, the structure of the internal EM energy of the entity will gradually return to normal. The entity then is said to have *discharged* (with respect to the new pattern or structure it had charged up with previously.) Discharge is also called *deactivation*.

The mass of an observable entity is a direct indication of its degree of total exchange with the vacuum. Since most of the mass of an atom is in its nucleus, then one is particularly interested in the activation and deactivation of the nucleus, for that is where the process largely occurs. The deterministically structured potential reaches directly to the nucleus of the atom, and the interaction between internal structuring is far greater in the nucleus than in the electron shells of the atom.

### The Nuclear Charge Spreads

As the nucleus charges up with a new vacuum potential pattern, its EM coupling with the electron shells gradually is changed also, producing electron changes (of a wide variety) as well. *Activated* masses — atoms, nuclei, ions, neutrons, and electrons, for example — can then exhibit quite abnormal external chemical, electrical, and gravitational interactions as compared to unactivated (normal) "inert" masses.<sup>71</sup> If there is any sort of deterministic pattern in the activation, the activated nuclei can act very differently in their electrical, chemical, *and nuclear* interactions.<sup>72</sup>

Thus the internal energy structure of everything that exists or moves through the vacuum — every particle, wave, etc. — interacts with the internal structure of the potential (spacetime).<sup>71</sup> Everything is continually charging and discharging internally. Any change in the infolded Whittaker structuring of the local vacuum potential will gradually activate everything — virtual or observable — existing or moving locally through that region.

### Activation of Photons

If one wishes to produce strongly activated photons that have a selected internal energy structure, one first produces a scalar EM potential with that structure and charges/activates matter (atomic nuclei) with it. Then one uses four-wave mixing in that material to evoke a highly amplified phase conjugate replica wave in response to a weak signal wave. The highly amplified replica will internally contain a strong replica of the selected structure.

EM waves whose potentials<sup>74</sup> are comprised of such activated photons can be produced and transmitted. When this activated wave is absorbed in a distant target, its internalized EM interaction will deposit this selected structure in the target mass. Gradually that internal activation structure will diffuse through the mass — particularly its atomic nuclei, then its lattice structure — so that the target becomes activated as well, with the desired pattern. Continued Irradiation of the target will result in a certain equilibrium "charge level" for that selected activation structure (partial potential) being present in equilibrium in the atomic nuclei of the target EM coupling to the electron shells and further interatomic interaction gradually activates the material lattice of the target with that Whittaker structure.

When external photon interactions now occur with the activated target material, kindling of the hidden virtual-state order may produce sufficient coherent integration to breach the quantum threshold and produce observable physical change. This will produce an "anomalous" change with respect to normal macroscopic interactions. Physical reality itself has been directly engineered and altered.

For specialized applications, extremely intense pulses with selected internal energy substructures can be generated. When these strike a target, immediate and intense effects can be obtained, particularly in the atomic nuclei. Fissioning of a nuclear material, for example, can be directly accomplished by this process. With slightly less intense application, specific cellular diseases or behavioral patterns can be promptly induced in biological systems.

### Western Physicists Missed It

In experimental physics, Western scientists have been preoccupied with ever more subtle detection of charged particles translated by the *externalized* envelope energy of EM waves and potential gradients. They have not recognized that (1) gravitational potential stress always has a hidden electromagnetics substructure,<sup>75</sup> (2) the greatest portion of this substructure is electromagnetic, and (3) that hidden EM substructure can be deliberately controlled and utilized to manipulate particles, atomic nuclei, and gross matter (both living and nonliving) in ways that are completely impossible with the present *envelope* translation electromagnetics.

The hidden EM stress substructure can be deliberately engineered by composing it of a proper deterministic set of EM waves and signals, and infolding these together with their equal phase conjugates into a modulation and standing wave resonance process.<sup>76</sup> This produces an "artificial" or internally patterned/activated potential with the desired Whittaker bidirectional EM wave structure hidden inside. Since earliest times, living systems have utilized these internal EM energy channels and performed such "vacuum engineering" by infolding. Because we have not recognized or measured this internalized EM energy in biology and physics, we have heretofore completely failed to penetrate to the active infolded EM signals and hidden EM control mechanisms of living biological systems — literally because our present instruments cannot detect and measure their functioning nor the hidden EM energy they utilize.

### Chaos: Hidden Order Underlying Randomness

Because we have been preoccupied with *externalized* EM interactions, we have been reductionist in our outlook upon physical reality. Accordingly we have built a present physical science and biology that is almost completely *reductionist* (i.e., we believe that the whole is just the sum of the parts, and that is all there is to it.). However, the interactions of *internalized* EM stress energy transcends reductionism. Then the whole is no longer just the sum of its parts, but also is

changed and affected by the overall nonlinear internal interactions of its parts — both with each other and with the whole itself. Then we indeed have a new holographic science whose true ordered nature does not presently appear to us through our crude "externalized energy" detectors except as *chaos* — the mysterious presence of hidden order in apparent randomness. When such "randomness with hidden order" — chaos — is integrated and collected, surprising and unsuspected order emerges macroscopically.<sup>77</sup>

### **Special Implications for Quantum Mechanics**

However, quantum mechanically this implies that there exists hidden order even inside a single quantum of change. That is, the hidden order is *subquantal*, hence *virtual*.<sup>78</sup> This tells us that the virtual state itself is ordered by Whittaker structured-potential methods.

But this changes the interpretation of one of the postulates (fundamental assumptions) of present quantum mechanics itself. Now one must postulate that quantum change is *chaotic*, rather than purely *random*.<sup>79</sup> For large collections/integrations of quantum changes, the hidden internal order emerges and stabilizes. Thus quantum change is statistical, but it is not the Gibbs statistics of a random variable; rather, it is *chaotic* statistics. Since the macroscopic implies large collections/integrations of the virtual, the chaotic statistics of quantum change yields an ordered macroscopic universe that emerges from *seemingly* random (but actually, already chaotic) microscopic changes.<sup>80</sup>

It also resolves one of the burning issues in quantum mechanics today: the problem of the missing chaos.<sup>81</sup> One simply alters the fundamental interpretation of the QM postulate — that quantum change is statistical — to mean that quantum change is *chaotic*. This places quantum mechanics upon an *already chaotic* basis, resolving the QM foundations difficulty of the missing chaos.

### **It Was Already Implicit Within the Theory**

Actually, from still another viewpoint, the whole thing should have been apparent long ago. Numerous physicists have struggled with the embarrassing fact that the energy in the G-field is *negative* energy. For the G-field, like "charges" — that is, all masses, so to speak — *attract* each other. Their unrestrained attraction does work on the G-field between them and increases the energy of the field (potential) at the same time that the kinetic energy of the masses is increased. But conservation of energy states that the energy of the system (kinetic energy of the particles plus the potential energy of the field) must remain constant if there are no other sources or sinks. Hence the increased energy of the G-field must be negative, since the increased kinetic energy of the particles is positive. To drive these "like G-charges or masses" apart, one has to input additional positive energy to the field to cancel some of its negative energy. Therefore one has to expend additional positive energy to separate two masses against the G-field attraction.

In electromagnetics, of course, like "charges" — either electrical or magnetic — repel each other, and their unrestrained repulsion weakens the EM field (potential) energy at the same time that the kinetic energy of the charges is increasing. Conservation of energy of the system thus requires that positive energy "goes out of the weakening EM potential, driving the repelling electrical charges apart and increasing their kinetic energy. This means that the energy of the electric field (potential) is positive.

So we now speak of positive (*externalized*) field energy and negative (*internalized*) field energy. What we call *normal EM energy* is *externalized (outfolded)* EM energy. What we call *normal*

*gravitational potential* is in fact *internalized (infolded)* EM energy. This of course is completely consistent with Sakharov's seminal 1968 hypothesis that the gravitational field is not a primary field of nature, but is generated by — and composed of— other ordinary fields.<sup>82</sup> In fact, to the first order it is generated by, and composed of, infolded electromagnetic fields. Sakharov's hypothesis has led to an explosive development of stochastic gravitation,<sup>83</sup> culminating in the very important papers of Harold Puthoff.<sup>84</sup> Indeed, the modern vacuum is anything but empty, but is filled with Whittaker order and structure, incredible density of disintegrated EM energy, and violent virtual particle flux of an intensity and density that boggles the imagination.<sup>85</sup>

## The Case of Opposite Charges

In passing, for the purist we briefly point out the case of opposite charges. First, let us look at equal but opposite *electrical* charges. Electrically, two unlike charges are seen by the external observer to attract each other, and increase the strength of the field. However, *charge-wise only (not mass)*, each charge is now the antimatter partner (time reversal) of the other. In quantum mechanics, time is not an observable, but only a parameter. Since we never *see* time but only infer it from observed spatial changes, we will just see the *spatial* track of the time-reversed forces and the energy situation. Thus we will see mutual "time-reversed repulsion" — which corresponds to *mutual attraction* as seen by the time-forward observer. The electric field now seems to add negative energy. That is, additional positive energy is seen to be extracted from the electric field, to increase the kinetic energy of the attracting particles, which means that the negative energy of the field is increased. However, the external observer does not see this energy as negative but as positive. He sees the positive energy of the electrical field increased.

When unrestrained, two unlike *gravitational* charges (i.e., a positive mass and a negative mass) act in similar time-reversed fashion. The situation is exactly opposite to the case of the electrical charges and fields. To the forward-time external observer, the two unlike gravitational masses will be seen to repel (i.e., to "time-reversed attract") each other and decrease the negative energy of the gravitational field between them.

We also examine another case: the coherent integration of photons. We choose to regard a photon as a coupled electron-positron pair, in the virtual state. There are now two ways of ordering collections of photons.

First, if we parallel-order the positrons and parallel-order the electrons, this is coherent integration of photons, which is involved in a single EM sine wave, for example. In this case, we still have all the positive charges opposed to all the negative charges, so the situation remains *photons* and electromagnetic. In an EM sine wave, the electric charges are collected in the positive E-field portion of the wave, and the positrons are collected in the negative E-field portion of the EM wave. This wave will always interact with a charged particle, regardless of its phase, at all but its beginning, ending, and middle "zero E-field" points.

The second way to order collections of photons is to equally collect electrons and positrons. That is, for each electron/positron photon, its antiparticle (its antiphoton, which in this case is a positron/electron photon) is collected with it. Voila! The vertically parallel electrons and positrons attract each other, so that *all resultant E-fields of this collection are zeroed, vectorially*. Further, each photon/antiphoton pair now has spin-2, which does not constitute a photon with non-zero E-fields, but a *graviton* with zeroed E-fields. That is, we have created a pure electrostatic scalar potential, with a hidden *internal* EM wave/photon coupling and decoupling structure. In this coupling, which we have very crudely described, photons/antiphotons are continually coupling and uncoupling. From Whittaker's work, the coupling and uncoupling are phasing, both vertically and horizontally, so that harmonic sets of paired bidirectional EM waves

are seen to be internally moving (photons coherently coupling in one direction and antiphotons coherently coupling in the other, then decoupling, then recoupling, etc.) inside the potential.

What we have done, in short, is turn electromagnetic energy into gravitational energy. What emerges from all this is a clear principle (which can be demonstrated in the laboratory, with only medium difficulty): The one-to-one addition of an electromagnetic wave and its phase conjugate replica of equal magnitude, results in a gravitational envelope wave of pure scalar potential. In Bohm's terms, it infolds the electromagnetics into a hidden, ordered EM structure of a standing gravitational wave. Note that this gives a new view of negative energy vs. positive energy. We may state now that positive energy is ordinary, time-forward, outfolded EM energy; and negative energy is nonordinary, time-reversed, infolded EM energy.

But if that is true, then one of the cornerstone physics assumptions is false: that is the assumption that a photon and an antiphoton are identical. Indeed, this is false, as this writer has protested for years. Further, it is easily proven that it is false. We do so as follows: First, take a phase conjugate mirror material. We now wish this material to sometimes emit ordinary photons (which it will do, for example, by simply heating it). We also wish it to sometimes emit antiphotons, or time-reversed photons (which it will do when stimulated by absorbing another photon, and emitting a phase conjugate replica. Now we measure the recoil of the mirror material *when it emits a photon or antiphoton*. That's fairly readily done; a little tricky, but not too difficult. Any decent university lab can do it easily. An interesting thing now emerges: *The mirror material measurably recoils as required by conventional theory when it emits an ordinary photon. It does not recoil as required by conventional theory when it emits an antiphoton.* We therefore have shown that, in some very fundamental fashion, *a photon and an antiphoton are very different, and their emission is very different from the fundamental criterion of Newton's third law.* Q.E.D.

### Whittaker Rediscovered Tesla's Standing Columnar Wave

Actually the standing Whittaker 1903 wave is the same strange new wave that Nikola Tesla experimentally discovered emanating from Colorado thunderstorms four years earlier — on the night of July 3-4, 1899.<sup>86</sup> This was Tesla's famous *standing columnar wave*. Let us give credit where credit is due: in later years the Great Electrician repeatedly stated that he was not using transverse EM waves, but rather he was using *longitudinal EM "sound" waves* — waves of compression and rarefaction of the etheric medium (of the virtual particle flux of vacuum) itself.<sup>87</sup> In other words, he was using *stress waves of the vacuum ether* — pure potential waves, precisely the same as those for which Whittaker wrote the theory in 1903.

In fact, then, Tesla was using Whittaker standing potential waves with deterministic bidirectional EM transverse wave hidden substructures. He had discovered and was utilizing the *internalized* EM energy (i.e., the information content) of the field as well as its *externalized* EM energy the field. Generations of Western physicists and electrical engineers — brought up on an exclusive diet of the Heaviside/Gibbs vector truncation of Maxwell's unified electrogravitation — have condescendingly believed that Tesla was mistaken.<sup>88</sup> They have haughtily proclaimed that no one could produce and utilize longitudinal EM waves — because *they themselves* could not do so! Those same physicists and engineers have not had the slightest understanding of what Tesla really discovered and used. And they have not had the slightest knowledge of the Whittaker papers, which have been there in the literature all these years, neglected in the West. Unfortunately, Whittaker's work and Tesla's work were uncovered, thoroughly investigated, extended, applied, and intensively utilized long ago by Soviet scientists to produce powerful new secret superweapons and frightful EM biological warfare weapons.<sup>89</sup>

## Soviet Weaponization

The Soviets simply took the internalized EM energy theory directly from the Whittaker papers in the open literature and weaponized it. Taking the Whittaker viewpoint, the most important and insidious thing about the Woodpecker transmissions is the *infolded* EM content inside their standing (persistent) potential waves — *not* the "external envelope" E- and B- translation fields that constitute the "normal" electromagnetics familiar to our own scientists and engineers. It is the infolded paired bidirectional EM waves and energy — the hidden *internalized* EM energy that has been added within and to the normal envelope E- and B-field translation energy — that allows the Soviets to utilize two quite different kinds of EM energy, and conceal the most important kind from prying Western investigators.<sup>90</sup>

What this means is that if one just measures the *externalized* E- and B-fields transmitted by the Woodpecker transmitters — as Western scientists and engineers do — then one misses the most important thing. Oh, one will believe the Woodpecker is an over-the-horizon (OTH) radar, alright, for it obviously can perform that function by the highly restricted *envelope* (outfolded, externalized) EM that we Westerners already know about, measure, and use. But one will not see or know anything about what the Whittaker standing potential waves of the Woodpeckers can do and are doing — both energetically and biologically — with their hidden internalized EM information content/structures.

## Detection and the Aharonov-Bohm Effect

To get at the infolded EM structure of the Whittaker potential, one must make a two-stage detecting instrument. The instrument must contain a *shielded interference first stage*, where two or more Whittaker potentials interfere, a la the Aharonov-Bohm effect.<sup>91</sup> [An overview of the Aharonov-Bohm effect is given by Olariu and Popescu.<sup>92</sup> For confirmation of its proof and begrudging acceptance, see Schwarzschild.<sup>93</sup> For weapons potential, see Bearden.<sup>94</sup>] By that initial interference in the first stage, Whittaker's second paper<sup>95</sup> shows that you will "outfold" the hidden EM contents of the interfering potentials, even if the interference is accomplished at a great distance. Voila! "Normal" (externalized) EM energy magically appears at the output of the first stage interference. The first stage was shielded, of course, to prevent any other spurious ordinary EM radiation to reach the region of the output of the first stage and contaminate our subsequent measurement of the first stage output. The second stage consists of a suitable *normal* EM instrument, spectrum analyzer, etc. to measure the outfolded EM spectrum, power density, distribution, timing, phasing, etc., allowing one to "track backwards" and characterize the *hidden EM information content* that was infolded inside the Whittaker potential.

Note that, taken together, the two Whittaker papers prescribe a means for producing a macroscopic Aharonov-Bohm effect at an appreciable distance — something which is eminently weaponizable.<sup>96</sup> It appears, of course, that the Soviet Union has done just that very thing.<sup>97</sup>

## Distant Heating or Cooling: Hot or Cold Explosions

In the macroscopic world, interference of two OTH Whittaker beams of widely separated Woodpecker OTH transmitters produces EM energy at a distance (in the distant interference zone). However, this *outfolded-at-a-distance* energy can either be *negative* EM energy or *positive* EM energy.<sup>98</sup> Negative (time-reversed) EM energy will do negative (negentropic) work: It

represents the reordering of scattered/disordered EM energy in the interference zone. This of course directly corresponds to *electrostatic cooling* in that zone.

On the other hand, positive (time-forward) EM energy will do positive (entropic) work: it represents the further disordering/scattering of the EM energy in the interference zone. This in turn corresponds to *electrical heating* in that zone. Whether heating or cooling is produced by Whittaker/Aharonov/Bohm (WAB) interference in the distant target zone depends simply upon how the electrical grounding of the Soviet Woodpecker transmitters is potentially biased vis a vis the local ambient vacuum potential in the interference zone. If the Woodpecker ground potential is higher, positive energy (and concomitant heating) will be produced in the distant interference zone. If the Woodpecker ground potential is lower, negative energy (and concomitant cooling) will be produced in the distant interference zone. The Whittaker scalar interferometer can produce the heating or cooling in the distant interference zone very slowly, gradually, or explosively." Indeed, incorporation of Whittaker's hidden EM structure inside the scalar potential requires a revision of all our present energy concepts.<sup>100</sup>

### Artificial Highs and Lows to Steer the Jet Streams

One can now see that, by simply changing the biasing of the Woodpecker transmitters, in a distant region the Soviets can produce atmospheric heating (and consequent lower pressure from the lowered density of the expanded air) or atmospheric cooling (and consequent higher pressure from the increased density of the contracted air.). Thus the Soviets can easily make high pressure areas or low pressure areas in the Woodpecker interference zones over the U.S. (and elsewhere) as desired. By deliberately placing and moving these artificially created high and low pressure areas, the jet streams over North America can be deviated and steered at will. This is the major means by which the Soviets engineer the weather over the United States today. Recall again that the Woodpecker transmitters really were a Bicentennial gift to us from the Russians, for they were cranked full-up on July 4, 1976. Since that time the weather over the U.S. has been far, far more anomalous than could even remotely be expected statistically. Note also that July 4, 1976 was the 77th anniversary of Nikola Tesla's discovery of his "standing columnar wave" — the Whittaker standing potential wave that the Soviet Woodpeckers utilize to engineer America's weather.

### Soviet/German Discovery of TR Radar Waves

One should also realize that the Soviets discovered time-reversed (TR) EM waves right after World War II. In the latter 60's and early 70's, to their astonishment, Western scientists found time-reversed EM waves emerging in the open Soviet nonlinear optics literature. In 1972, two Soviet scientists briefed U.S. scientists at Lawrence Livermore National Laboratory on nonlinear optical phase conjugate waves.<sup>101</sup>

At the end of World War II, the Soviets discovered four-wave mixing and pumped phase conjugate mirror effects in the German radar team's anomalous radar experiments with multibeam illumination of radar absorbing material (RAM). Specifically, in multibeam illumination of RAM materials, one gets four-wave mixing and amplified phase conjugate replica effects. The phase conjugate replica, of course, is a time-reversed EM wave. Further, in four-wave mixing, this time-reversed EM wave can be amplified. Thus anomalous, amplified, time-reversed radar waves would have been encountered in the radar team's experiments. The Soviets obtained the entire German radar team — RAM materials, multibeam illumination anomalies and all — at the end of the war. In deciphering these anomalies, the Soviets and their German



protegees discovered time-reversed EM waves, phase conjugate replicas, pumped phase conjugate mirrors, and multiwave mixing effects. And they first discovered them in *radar* waves — microwaves — not in *optical* waves.<sup>102</sup>

### Targeting U.S. Embassy Personnel in Moscow

Accordingly, the Soviets began to apply TR EM waves to *radar* (microwave) prototype directed energy weapons (DEWs) by about 1950 or so. And in the early 1950s they promptly started the weak microwave radiation of the U.S. Embassy in Moscow, targeting the U.S. Ambassador and guaranteeing highest-level U.S. attention. The purpose was to stimulate the U.S. with the new technology, to see what reactions and responses we produced on site at the Embassy. In other words, by watching our *technical* reaction at the site, the "Embassy stimulus" allowed the Soviets to find out whether or not we knew about Whittaker potentials and their infolded EM substructures, Kaznacheyev EM induction of diseases, etc. By our total lack of any scalar EM reaction, we conclusively showed the Soviets that we still only knew of ordinary *externalized* (envelope) electromagnetics.<sup>103</sup> Specifically, we were totally unaware of the infolded-EM Whittaker potential wave whose deterministic internal structure constituted *specific cellular biological information*. This hidden *information content of the field* was utilized to generate specific diseases in U.S. Embassy personnel, including three U.S. Ambassadors.<sup>104</sup>

### A Reinterpretation of the Johns Hopkins Investigation

Some years later, Johns Hopkins scientists investigated the Soviet microwave radiation of our Moscow Embassy and found that *no diseases were induced in personnel in Embassy locations where E- and B-fields from the radiation existed*.<sup>105</sup> The patterns of the non-zero force-field radiation areas inside the Embassy were carefully modeled by the Johns Hopkins team.<sup>106</sup>

Predictably, Johns Hopkins scientists ignored the potentials and concluded that, since no diseases occurred in personnel located where the E- and H-fields were, it could not have been the microwave radiation causing the effects. This conclusion, of course, follows the classical EM assumption that *only* the nonzero E- and B-fields are causative agents. Note, however, that the *persistence of the potentials* is inversely proportional to the strength of the EM force fields (Figure 12). After all, a force field is just a gradient in a potential, which means a *bleedoff* or escape of that potential by translation of charged particles. Potentials *persist* where there is no bleed-off (i.e., where there are no force fields). Whittaker potentials, which in the absence of interferometry do not produce external gradients, normally do not produce force fields and move electrons to measure. Normal instruments will therefore usually fail to detect the presence of persistent potentials — for exactly the same reason they fail to detect the ambient vacuum potential in which they are immersed.

The *Johns Hopkins scientists reached a totally wrong conclusion*. Since 1959 and the Aharonov-Bohm paper,<sup>107</sup> physicists have known that the EM force fields are not even primary; the potentials are primary, and the force fields are *effects* created directly in the system itself by interference of the potentials. However, as yet this has not widely filtered down into conventional electrical engineering as a major consideration! Precisely stated, what the Johns Hopkins investigation actually showed was that it was not the E- and B-fields — the force fields — that were inducing the diseases. However, the microwave radiation was definitely involved, or else there would not have been such total anticorrelation to the force fields. That is, if the microwave radiation was not a factor, then some of the diseases should have occurred in the absence of the force fields, and some should have occurred in the presence of the force fields.

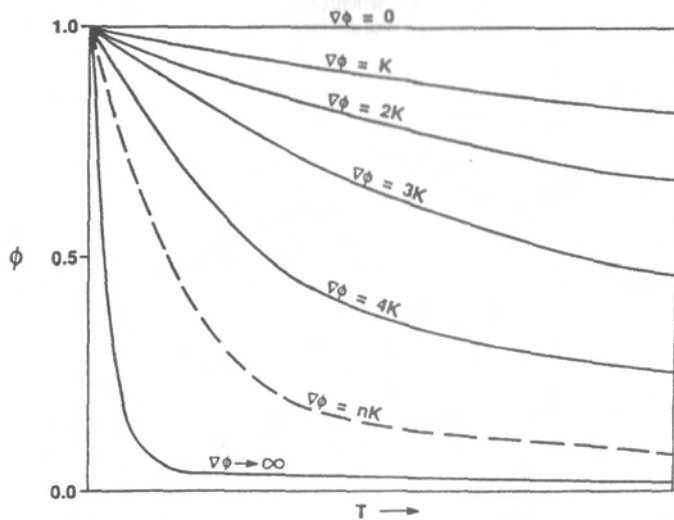


Figure 12. Potential persistence vs. gradient discharge. The curves are adapted to show typical declining exponential variation of the discharge.

Note that, other things being equal, total correlation to the absence of one of a pair of canonical variables may be very high correlation to the presence of the other canonical variable. From Whittaker's 1904 paper, we know that we can discard the notion of the E- and B-fields in the microwave radiation pattern in the Embassy, and replace these force fields with interfering, dynamic (changing) and *interfering* scalar EM Gelds. Indeed, as Whittaker showed, two source of interfering scalar potential fields/beams are sufficient to produce the EM force fields. *Twin-beam transmitters, and therefore the presence of interference — was in fact present in the microwave transmissions, as verified later.* Where Whittaker standing potential waves are not in interference, the waves remain as force-Geld-free potentials. In those regions, the E- and B-fields are zero.

The point is, the stable presence of EM force fields and the stable presence of EM scalar potentials are canonical. The hidden EM bidirectional wave structure of these stabilized potentials is still there and stabilized, even when the external force fields are zero.

That is, in the presence of the Whittaker potentials where scalar interferometry does not occur, the externalized EM force-field waves are zero. However, the internalized bidirectional EM wave structure of the Whittaker potentials is very much present. If the harmonics of the enfolded EM Whittaker structure have been deliberated created to possess a disease pattern signature, then that disease pattern is present in the persistent potentials. A body exposed to that activated potential will gradually "charge up" its master cellular communication system with the disease pattern. Thus that body will activate its defenses, try to throw off the disease, but be unable to rid its cellular control system of the cytopathogenic pattern that is affecting all its cells. That body will thus gradually develop the disease, with sufficiently prolonged exposure to the cytopathogenic pattern on the internalized EM of the persistent potentials.

What Johns Hopkins researchers actually found is that the *changing* EM microwave potentials were not inducing the health changes in Embassy personnel. Ergo, if it was the electromagnetic radiation, it had to be the persisting (unchanging) potentials — the standing potential waves a la Whittaker. And there was essentially 100 percent correlation between induction of the diseases and the possibility of the presence of the persistent microwave EM potentials. From there, the induction of the diseases can be explained via Kaznacheyev's *cytopathogenic effect*,<sup>108</sup> Devyatkov's *information content of the field*,<sup>109</sup> and a deterministic infolded internal energy structure of the Whittaker potentials.<sup>110</sup>

The Johns Hopkins study actually showed a high correlation between the presence of persisting microwave potentials and the locations of the induced health problems in Embassy personnel. Since it showed total lack of correlation to the force fields, it eliminated any other causative agent *except* the structured Whittaker potentials. If the microwave radiation had not been inducing the illnesses, then some health changes should have occurred in personnel in locations where the E- and B-fields were present, as well as in some locations where they were absent.

The Johns Hopkins team members were highly capable scientists and very good electrical engineers — but completely lacking in knowledge of structured Whittaker potentials, the Devyatkov/Whittaker infolded EM bidirectional wave-pairs that constitute a hidden deterministic Information content of the field, and the Kaznacheyev EM induction of disease at a distance (cytopathogenic effect). Of course, the twin-beam part of the microwave radiation gives a clue to the Whittaker/Aharonov/Bohm interferometry involved, and how to get the graviton (Whittaker potential) radiation back into EM photon radiation structures inside the Embassy interference zone.<sup>111</sup>

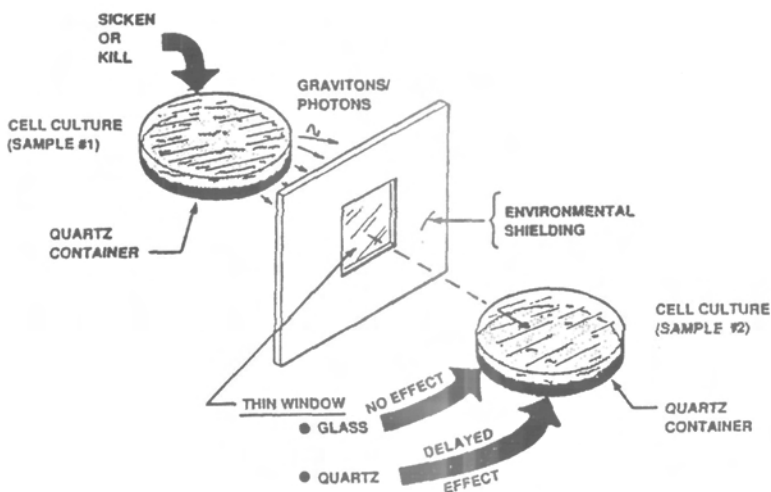
### Advanced Photobiology Aspects

It should be pointed out that apparently the U.S. did not even bother to translate Kaznacheyev's important 1981 book on the EM induction of cellular death and disease.<sup>112</sup> Figure 13 shows a diagrammatic illustration of the cytopathogenic effect, as demonstrated in thousands of military experiments by Kaznacheyev's team. And apparently U.S. researchers still have not translated Devyatkov's book on the information content of the field.<sup>113</sup> The overwhelming importance of the most crucial photobiological work in the world simply has not been recognized to date by Western scientists and intelligence analysts.

If one checks Devyatkov's work, one finds that (1) the Russians obviously know all about the coded EM potential — they refer to the infolded EM waves in the Whittaker potential as the *information content of the field*. Devyatkov also points out the incredible medical implications, and strongly stresses that this is *not* normal communications theory! He gives a part of the theory in his paper — all the while carefully keeping from revealing that the "field" being structured with information content consists of the *structured scalar Whittaker potentials*. He is not referring to modulations on the carriers or to wave-front shaping of the EM forcefield waves. Of course he refers to healing and diagnosis; the effect can be used either for direct healing of diseases<sup>114</sup> or for the *direct electromagnetic induction of the desired diseases themselves*.<sup>115</sup>

Electromagnetic healing works this way: (1) The Kaznacheyev cytopathogenic signals for a specific cellular disease is time-reversed (phase conjugated). This produces a specific healing signal complex. The complex signal may also be powerfully amplified by pumped four-wave mixing techniques, using a pumped phase conjugate mirror. (2) The healing signal complex is infolded into a structured Whittaker standing potential wave. By Whittaker's 1904 paper, this infolds the signal complex into one or both of the two scalar potentials that are involved in the production of a normal EM wave. This process yields, for example, a normal EM wave which has

been internally altered with the hidden information content of that healing signal. Or, if one wishes, one may simply utilize a single Whittaker standing potential wave directly, and infold the healing signal complex in it. (3) The wave with its healing information content/structure is broadcast into a targeted living body, where it gradually charges up (*activates*) the body's master cellular control system with the desired healing signal complex. In turn, the cellular control system carries this complex to every cell of the body, gradually activating all of them with the healing signal. At the same time, the immune system is conditioned and charged (activated) for the specific healing process. Table 4 summarizes this EM healing methodology.



**Figure 13. The Kaznacheyev cytopathogenic (CPG) effect. Death and disease transmission by deterministically structured gravitons. The gravitons contain disease-specific infolded photon patterns that represent specific disease information. The destruction of the harmonics of the Whittaker pattern destroys the time-sync of the photons, freeing them and destroying the gravitons.**

**Table 4. Countering EM Biological Warfare.**

- **PER QUANTUM MECHANICS:**
  - **MECHANICS IS EM AT BASE**
  - **CHEMISTRY IS EM AT BASE**
  - **BIOTOXINS ARE EM AT BASE**
- **ALL BW IS EM BW AT BASE**
- **PREPARE WHITTAKER EM ANTIDOTE AS FOR AN UNKNOWN DISEASE**
- **IRRADIATE PERSONNEL WITH WHITTAKER EM ANTIDOTE**
- **DISEASE IS REVERSED IN SYSTEM TESTED**

The Soviets have long since developed this capability, and they continue to hold it highly secret. Techniques similar to this give the Soviet Union a perfect defense against surreptitious biological warfare.

The Soviet Union is in a position to be able to successfully defend against any sort of biological warfare attack, by any kind of biological agent. It is presently the only nation on earth that possesses such a capability, or that has the ability to employ biological warfare to the hilt without fearing retaliation in kind. Thus, *for at least three decades biological warfare has been a preferred Soviet option since no other country has such anti-BW defenses and the Soviet Union does.* And their decades-long microwave radiation of personnel in the U.S. Embassy in Moscow, to induce mysterious health problems and diseases, has continued to show them that the U.S. knows nothing of this technology, and is unprepared to defend against it.

Inducing Diseases in U.S. Embassy Personnel

In the microwave radiation of the U.S. Embassy in Moscow and the deliberated induction of diseases and health problems in Embassy personnel, Table 5 summarizes how the diseases and health problems are induced. All that is necessary is just to use and infold the Kaznacheyev cytopathogenic EM signal complex (the K-signal) directly into a Whittaker potential, without first time-reversing it. If only the optical spectrum for the specific cytopathogenic effect is available, it can readily be translated to the microwave spectrum by using the principle of subharmonic oscillation.<sup>116</sup> Such "specifically activated" potentials (signals) can be broadcast by transmitters as standing Whittaker potential waves, and used (with or without scalar Whittaker interferometry) to directly produce the disease pattern in targeted personnel. To produce efficient charging or activation of the targets with the disease pattern, the potentials must be persistent and stable, producing a steady "trickle current" of structured scalar potential pattern into the atomic nuclei of the bodies of the targets. There it gradually charges the nuclei and the master cellular control system.

Table 5. Electromagnetic Biological Warfare (EM BW)

- **DETERMINE KAZNACHEYEV OPTICAL DISEASE PATTERN**
- **TRANSLATE TO MICROWAVE FREQUENCY REGION**
  - **SUBHARMONIC OSCILLATION**
  - **RETAIN PRECISE HARMONIC RELATIONSHIPS**
- **EXPRESS MICROWAVE PATTERN AS A WHITTAKER/DEVYATKOV STRUCTURE**
- **INFOLD SIGNAL COMPLEX INTO CARRIER(S)**
- **INCLUDE BIOSYNC MECHANISM OR OVER-RIDE**
- **TRANSMIT INTO TARGETED POPULATION**
- **ACTIVATION/KINDLING OCCURS, INDUCING DISEASE**

Real transmitters and equipments are imperfect. When these internally structured Whittaker waves are utilized in real transmissions, some interference of the infolded waves usually may

occur. Thus small, normal EM signal frequencies — similar to EM "splatter" or noise, but consisting of small, outfolded complex EM frequency spectra (according to Whittaker's 1904 paper) — may still be produced. U.S. investigators will detect *that* spectrum of normal EM waves, using their normal EM detectors. They will then puzzle over what the detected spectrum and its changes and content mean. Again, this is one more refinement of the stimulus to see if the U.S. recognizes the Kaznacheyev/Devyatkov content, and whether it knows how it was infolded and outfolded. For this reason, the Soviets often used twin-beam microwave radiation, to provide the necessary Whittaker scalar interferometry for outfolding to guarantee our detection of E- and B-fields inside the Embassy.<sup>117</sup> This deception plan, for example, seems to have completely fooled the Johns Hopkins researchers.

Thus the Soviets can intentionally induce desired disease(s) in human or animal bodies at a distance — such as in personnel inside the U.S. Embassy, in a targeted population half way round the world, or in a targeted mammalian population such as porpoises in the ocean.<sup>118</sup> Sea lions or seals would also provide excellent test specimens for such clandestine testing.<sup>119</sup>

However, note that in the target zone the diseases will be induced only where the potentials persist — that is, where there are little or no E- and B-fields formed to "bleed-off" the structured or *activated* potential that contains the infolded disease signal complex. *Note again that this sort of thing is precisely what the Johns Hopkins study really showed, but the study scientists did not consider the potentials and their persistence as a possible inducing agent, since they had no knowledge of Whittaker-structuring of potentials.*

### Pieces of the Vacuum Medium

We have previously detailed some of the things that can be done with this approach — and some of what *has* been done with it by the Soviets. Some of this documentation has been with respect to Soviet biological warfare,<sup>120</sup> some has been with respect to Soviet scalar EM weapons,<sup>121</sup> phase conjugation in Soviet superweapons has been accented,<sup>122</sup> and Soviet prowess in weather engineering and steering of the jetstreams over North America has been documented.<sup>123</sup> The reader is also strongly referred to my July 1989 update<sup>124</sup> delivered to the USPA Annual Symposium, Sacramento, California. There the reader will find how to directly unify gravitation and EM in the most fundamental manner: by letting the simplest graviton (spin 2) be composed of a coupled photon/antiphoton (each of spin 1) Whittaker substructure wave pair.

Potentials are composed of gravitons, not just photons. Per Devyatkov and Whittaker, gravitons can be deliberately structured internally so that they contain any desired photonic pattern/structure of spacetime whatsoever — including specific structures for a specific disease information content.

The graviton is a flexible, dynamic *piece of the local vacuum medium*. The exact photon coupling of the photons and antiphotons is statistical; that is, they are always coupling and uncoupling at a tremendous rate, at any point. The average coupling gives the average value of graviton spin. The graviton is the photon-coupled aspect; coupling is statistical, and so the graviton is just the statistical average of the photon/antiphoton coupling. Spin-two gravitons constitute an uncurved local spacetime. Gravitons which *on the average* are substructured with less than or more than two photons, so that each total graviton spin is less than or greater than two, constitute a locally curved spacetime. That condition violates Einstein's general relativity assumption (postulate) that the local spacetime is always flat.

This *piece of the vacuum medium* — the photon-structured statistical graviton — is considered high state secret by the Soviet Union.<sup>125</sup>

## The Quantum Potential

The present author's 1989 USPA *Scalar EM Update* paper also developed a specific mechanism by means of which a *quantum potential (QP)* is generated, either accidentally or deliberately.<sup>126</sup> Formation of a quantum potential leads to *nonlocal* effects being produced instantaneously between participating components and equipments, even though they may be widely separated. When the equipments start being connected by a common quantum potential, these widely separated equipments and/or materials start partially acting as if they were all part of the same *local* system, and not separated at all! The effect (self-ordering of the potentials into a quantum potential) increases as the signal density of the environment increases.

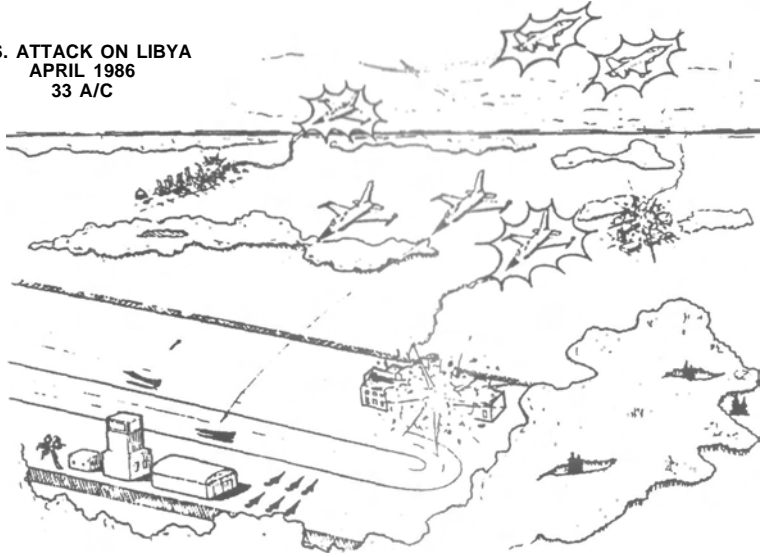
Note that a local observer at one of the pieces of affected equipment will see anomalous and spurious internal EM signals apparently "generated" internally in, and appearing in, his electronic equipment, with no apparent cause or logical explanation. Indeed, since we do not design and build electronic equipment to operate in a quantum-potential connected manner, the extra signals cause serious interference in the electronics functioning, often even damaging or destroying the circuits themselves. Every signal produced in any one of the QP-participating equipments is at least partially and instantly input to all the rest of the participants as well. Thus each local observer sees anomalous and spurious internal "jamming" signals that interfere with the electronics functioning, and that may even disable or destroy it. Again, he sees no logical explanation for these mysterious internal jamming signals, which seem to spontaneously arise out of nowhere. When subjected to the QP effect, electronic equipments throughout an area exhibit massive and shocking aberrations, bizarre malfunctioning, and spurious failures. Every circuit, equipment, generator, warm source (IR), etc. in the area contributes to the effect. It is purely a function of the signal density, and has only very little to do with the power of the individual signals.

A startling example of the formation of a quantum potential, and an unexpected severe effect from these nonlocal effects, was experienced in the April 1986 U.S. air attack on Libya. The QP formed as a result of the increased signal density (and the concomitant increased occurrence of multiwave mixing phenomena) of the EM environment.<sup>127</sup> Figure 14 and Table 6 illustrate these anomalies experienced in the attack. Table 7 summarizes recent Pentagon studies of electromagnetic interference (EMI). It appears that, unless EMI shielding is universally incorporated in U.S. equipments, U.S. military forces may encounter catastrophic electronic equipment failures in the *really* dense signal environment expected in the European theater.

Even with EMI shielding, however, there is another effect, presently unknown to U.S. analysts, that may well predominate: that is, the formation of a quantum potential can still occur. If a QP forms, the subsequent wholesale failure of electronic equipments on the battlefield due to nonlocal self-ordering of the atomic nuclei in the radiating circuits and equipments may prove catastrophic. Further, both enemy and friendly radiations and circuit signals will contribute to increasing the effect. Figure 15 shows the mechanism for generating a QP.

The Soviets, for example, are fully aware of this QP effect, including how to deliberately generate a quantum potential in a given area. They also can be expected to know how to shield their own electronic equipments against these nonlocal QP effects, so they can operate in a QP environment — at least in one that is not too strong, but which would still be strong enough to disable and destroy electronic equipments not shielded against quantum potential self-ordering of the nuclei. The West does not yet even know of the QP effect, much less how to shield against it. The U.S. shields against ordinary EMI, but knows nothing of the quantum potential and does not shield against it. EMI shielding will increase the signal density required for QP formation by about two or three orders of magnitude, but will not eliminate the effect. It will just move the QP effect to a higher threshold of formation.

**U.S. ATTACK ON LIBYA  
APRIL 1986  
33 A/C**



**Figure 14. The quantum potential EMI "fireflies" effect.**

**Table 6. Real-Time Anomalous EMI Interference Via Quantum Potential. U.S. Airstrike on Libya in April, 1986.**

**[WASHINGTON POST, 22 JANUARY 1989, p.A4]**

- **33 U.S. AIRCRAFT IN STRIKE**
- **MANY HIGH-POWERED TRANSMITTERS**
  - **COMMUNICATIONS JAMMERS**
  - **RADARS**
- **SEVERE, UNEXPECTED EMI ENCOUNTERED**
  - **ONE F-111 DOWNED**
  - **NUMEROUS WEAPONS WENT ASTRAY**
  - **THREE FOREIGN EMBASSIES DAMAGED**
  - **SEVEN AIRCRAFT ABORTED**
- **STRIKE COMPLETED, BUT WITH DIFFICULTY**
- **IRATE COMMANDERS AFTER STRIKE: "US OR THEM?"**



Table 7. Recent Pentagon EMI Studies.

- U.S. TRANSMISSION COMBINATIONS CAN
  - AFFECT AIRCRAFT FLIGHT CONTROL
  - TURN OFF FUEL SUPPLY
  - CAUSE UNCOMMANDED DIVE/TURN
  - BRING DOWN U.S. WARPLANES
- SEVERE EMI EFFECTS IN STRIKE ON LIBYA
- UH-60 BLACKHAWK HELICOPTER PROBLEMS
  - UNCOMMANDED TURNS
  - FIVE EMI CRASHES SINCE 1982
  - \$175 MILLION PROGRAM LAUNCHED TO SHIELD IT
- 7-MONTH PRELIMINARY AIR FORCE STUDY OF LIBYA EMI
  - SEVERE EMI PROBLEM EXISTS
  - EMI SHIELDING IN HI-TECH WEAPONS OFTEN WAIVED
  - THOUSANDS OF CONFLICTS POSSIBLE
- MAJOR 3-YEAR, \$35 MILLION, 66-MAN STUDY PERFORMED

#### SELF-TARGETING

#### ALL COMPONENTS ACTIVATED

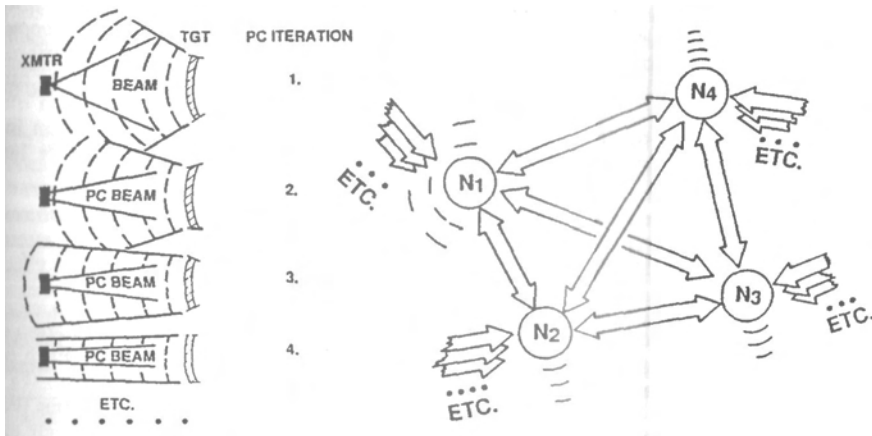


Figure 15. Mechanism for forming a quantum potential. Self-targeting exchange in infolded Whittaker channels between nuclei leads to nuclei pumped four-wave mixing, amplification, and consequent growth of time-sync'd potentia (the quantum potential) in widely separated nuclei and signal-interacted equipments.

Variations of the Woodpecker transmitters, for example, and of ultra-wideband transmitters could be adapted for the purpose of creating such an EM signal density in the environment that a quantum potential would begin to form.

Thus on a future battlefield, we may still get the shock of our lives when a great deal of our high-tech equipment — which is very good equipment — suddenly begins to malfunction and fail. Systems such as surface-to-air missile systems, radar systems including AWACS, power generators, tank fire control systems, aircraft avionics and fire control systems, missile guidance and control systems, and communications systems may fail us at the most intense part of the battle, when the need is the greatest, if a quantum potential forms on the battlefield.<sup>128</sup>

What I did not mention in my 1989 Sacramento paper is that the quantum potential can also be internally structured with a deterministic, enfolded EM content. The QP is also constructed of photon-structured gravitons, just as is the normal potential. The QP therefore has a Whittaker bidirectional transverse wave substructure. Note particularly Ignatovich's mention of just such a structure in the potential for the Schroedinger equation (see reference 16 above). Transmission of the graviton envelope is essentially a phase wave transmission and is instantaneous. We accent that, when QP weapons are utilized and a deliberate Whittaker structure is introduced in it, very powerful effects can be generated that cannot be resisted or opposed by ordinary means. A QP, for example, can conceivably be tailored so that it nullifies or destroys only a single, particular type of weapon or system, or mix of them. *It can be used to generate any desired effect in equipment or personnel at a distance.*

In this manner, the biological cytopathogenic effects — cellular death and disease — can also be produced *at a distance* and throughout a very wide area, without any *apparent* direct EM transmission of them in the ordinary sense. (Of course a *healing* signal can also be implanted in a QP, as an antidote.) It is conceivable that, using the Woodpecker transmitters, the Soviets may be able to induce in a targeted population the eerie situation where, the more persons that become infected with a particular disease, the more infectious the disease becomes *by noncontact means, directly through a specifically structured bio-quantum-potential linking that population.* Further discussion of this quantum mechanical action-at-a-distance EM biological warfare effect is beyond the scope of this paper. The reader is referred to cogent references on the quantum potential<sup>129</sup>, on the Aharonov-Bohm effect,<sup>130</sup> and on the inconsistencies between quantum mechanics and general relativity.<sup>131,132,133</sup> The reader may combine the information in those quantum potential references with the information in this paper and draw his or her own conclusions.

### Detection of Scalar EM in Woodpecker Signals

In August 1989, a close colleague/inventor friend positively detected scalar EM radiation directly connected with several giant radial clouds in the sky just off the California coast. Each of these clouds was "stabilized" against winds and did not move; other normal clouds in the sky moved right along in the winds blowing inland from the ocean. Further, on several occasions the scalar EM radiation was observed by my colleague to suddenly be cut off, and in each case that associated radial cloud dissipated within seconds. Such giant patterned clouds, with radial cloud streamers radiating from the center, have been widely observed across North America, connected with Soviet weather engineering.<sup>134</sup> Speculation on this scalar beam weather engineering has been published in a national medium.<sup>135</sup> Several types of radial clouds — the single radial, the connected twin, and multiple separate singles and twins — have been observed.<sup>136</sup>

## Whittaker Waves, Aharonov-Bohm Effect, and Hidden Variables

Note that Whittaker's 1903 paper<sup>137</sup> predates the modern (Bohm's) hidden variable theory (HVT) of quantum mechanics.<sup>138</sup> Whittaker's 1904 paper<sup>139</sup> — producing EM forces from interfering scalar EM potentials, even at a distance — also predates Aharonov and Bohm's seminal 1959 paper<sup>140</sup> on the primacy of the EM potentials rather than the force fields, and their prediction of just such a Whittaker scalar interferometer effect in the total absence of the electromagnetic force fields.<sup>141</sup>

Recently modern researchers, working on acoustic missiles and with the scalar acoustic wave equation, have "rediscovered" Whittaker's 1903 infolded bidirectional planar waves inside the scalar wave<sup>142</sup>; however, apparently they have not yet realized the application of this to scalar EM potentials, for use in their work on *electromagnetic* missiles. Thus it appears that our directed energy researchers are still not fully aware of the scalar extent of the Russian microwave directed energy techniques and capabilities.

### More on Kaznachev and Priore

In the U.S. neither the intelligence community nor the scientific community at large seems to have become aware of Whittaker's infolded intermodulating pairs of bidirectional EM transverse waves inside a standing potential wave,<sup>143</sup> and of their importance. Obviously our scientists and analysts therefore have not connected Whittaker structuring of the potential with Devyatkov's information content of the field, or with Kaznachev's cytopathogenic effect — the induction of cellular death and disease electromagnetically at a distance. As briefly covered in this paper, this Whittaker internalized EM energy mechanism *is* the mechanism that has been used by the Soviets in the microwave radiation of personnel in the U.S. Embassy in Moscow for over three decades, to generate health problems and diseases. Two U.S. Ambassadors were stricken with leukemia-like disease and died.<sup>144</sup> A third Ambassador (Stoessel) sickened during his tenure and even bled from the ears. Some years later, Stoessel also died of a leukemia-like disease.<sup>145</sup>

While the U.S. officially held steadfast to its pronouncement that the microwave radiation was harmless and not the cause of the personnel sicknesses and health problems, the Moscow Embassy was declared a hazardous duty post and government personnel were given a 20 percent differential in pay. Obviously the radiation was important to the Soviets, because they ignored requests from several U.S. Presidents to stop the radiation. The Johns Hopkins study<sup>146,147</sup> actually provides very strong correlation of the induction of health problems in Embassy personnel to the presence of persisting (unbled) potentials rather than forcefields (bleeding-off potentials).<sup>148</sup> Note that Kaznachev — the world's greatest expert in the electromagnetic induction of death and disease at a distance — now works with two secret Soviet agencies near Moscow which develop high-powered microwave directed energy weapons.<sup>149</sup> The obvious conclusion is that the Soviets are also developing, or have already developed, a range of powerful photogravitational EM BW weapons of mind-numbing power.<sup>150</sup>

Further, the U.S. has obviously not connected Whittaker's fundamental work with Antoine Priore's phase conjugating and multi-signal-infolding RF/rotating plasma device for curing cancer and leukemia with just such potential fields with infolded EM information content.<sup>151 152 153</sup> This means that U.S. analysts have not realized that phase conjugating a Kaznachev cytopathogenic signal pattern for a particular disease generates a specific healing (Priore/Devyatkov) signal for that disease. Consequently Western scientists have not realized that this mechanism can quickly provide a specific antidote signal for any biologically-induced disease, either known or unknown. Translation of the antidote signal to microwaves, etc. then readily yields a specific and effective

treatment signal. Tables 8 and 9 summarize the effective gravitobiological countermeasure to biological warfare.

Table 8. Countering EM BW (Cytopathogenic Signal Available)

- DETERMINE INFOLDED EM BW SIGNAL STRUCTURE
- TRANSLATE TO MICROWAVES
- PHASE CONJUGATE TO PRODUCE EM ANTIDOTE STRUCTURE
- INFOLD EM PHASE CONJUGATE STRUCTURE INTO CARRIER POTENTIAL
- IRRADIATE AFFECTED PERSON/POPULATION
- ACTIVATION/KINDLING OCCURS, REVERSING THE DISEASE

Table 9. Countering EM BW (Cytopathogenic Signal Unavailable)

- TREAT AS IF FOR UNKNOWN DISEASE
- CONSTRUCT EM BW SIGNAL STRUCTURE FROM DISEASED CELL CULTURES
- TRANSLATE SIGNAL COMPLEX TO MICROWAVES
- PHASE CONJUGATE SIGNAL COMPLEX TO PRODUCE ANTIDOTE STRUCTURE
- INFOLD EM PHASE CONJUGATE STRUCTURE INTO CARRIER POTENTIAL
- IRRADIATE AFFECTED PERSON/POPULATION
- ACTIVATION/KINDLING OCCURS, REVERSING THE DISEASE

### Biological Warfare Implications

To date, the U.S. has not realized the profound biological warfare (BW) implications of all this. The real BW implications (Table 10) are as follows: (1) The Soviet Union has developed, tested and perfected methods of inducing cellular changes, diseases, and death at a distance by means of specialized electromagnetic signals, whose specialized structure is not discernible or detectable by normal detectors. (2) The Soviet Union has developed, tested, and perfected methods of quickly producing EM antidotes to counter disease induced by any sort of new and unknown biological warfare agent. Mass EM treatment of personnel — including whole populated areas — can begin probably within two hours or less from the time personnel first are exposed or start to sicken. (3) The Soviet Union therefore is the only nation in the world that has a complete

affective counter to biological warfare. (4) The Soviets now regard biological warfare — particularly covert and deceptive BW — as a highly preferred option, because of the defenselessness of other nations against BW attack, and the strong ability of the Soviets to defend and negate such attacks in retaliation. (5) This BW preference has already existed in the Soviet Union for at least two decades, based on the timing of the Kaznachejev experiments, Devyatkov work, and early period of the demonstrated Priore effects in France. (6) As clearly demonstrated, for example, by the long U.S. inaction or ineffective action regarding the Soviet microwave radiation of our Moscow Embassy, the U.S. has a characteristic national style of little or no reaction to slowly increasing threats, and this is well-known to the Soviet. (7) *Given the first six BW implications, it is highly probable that the Soviets have already unleashed clandestine, "slowly increasing" biological warfare against the West, both with BW agents and/or EM agents, or EM augmentation.*<sup>154</sup>

Table 10. Biological Warfare Implications.

- THE SOVIETS HAVE DEVELOPED AND PERFECTED HIGHLY EFFECTIVE
  - EM BIOLOGICAL WARFARE
  - COUNTERS TO BIOLOGICAL WARFARE
  - MASS DEATH RAY WEAPONS
- THE USSR IS THE ONLY NATION WITH A COMPLETE COUNTER TO BIOLOGICAL WARFARE
- BW AND EM BW (COVERT AND OVERT) ARE PREFERRED OPTIONS FOR THE SOVIET UNION
  - MUTUAL ASSURED DESTRUCTION IS TOTALLY DESTABILIZED FOR SUFFICIENTLY COVERT SOVIET BW STRIKES
  - SITUATION HAS EXISTED FOR AT LEAST TWO DECADES
  - U.S. NATIONAL CHARACTERISTIC: NO REACTION TO SLOWLY INCREASING THREAT
- THE SOVIETS MAY HAVE ALREADY UNLEASHED A MAJOR "SLOWLY INCREASING" BW STRIKE: AIDS

#### Work of Beck, Hunt, and Lisitsvn

We mention one indicator of Soviet EM BW *capability* designed into the Woodpecker weapon system. Using this design capability, entire distant populations can be biologically attacked by the Woodpeckers, based on other known capabilities that have been observed in the Woodpecker signals.

Some years ago, Dr. Robert Beck observed transmitted signals on some 15 or more simultaneously Woodpecker channels where their ELF (e.g., 10 Hz) pulse repetition rates were precisely phaselocked together.<sup>155</sup> Further, ELF waves in the vicinity of 10 Hz have been shown to be capable of entraining the normal brainwaves of humans.<sup>156</sup> Normally a healthy person's

brainwaves would appear to be comfortably entrained to the 7.83 Hz main Schumann resonance of the earth's magnetic field. This means that, under those conditions, the common 10 Hz pulse repetition rate of the Woodpecker is capable of entraining the brainwaves of a percentage of the population in a distant targeted area. (To entrain a greater percentage, the transmitter power would simply be increased).

Each entrained distant brain has 15 or more "signal channels for Whittaker infolding", and for induction of cellular diseases and death, behavior changes, etc. a la Kaznacheyev and a la Devyatkov. Further, the Soviets have the proper phasing in the entrained brains: by phasing input conglomerates of signals and infolding them a la Whittaker, they are properly aligning those infolded signals for in-phase delivery to the distant entrained brain. Figure 16 shows this situation.

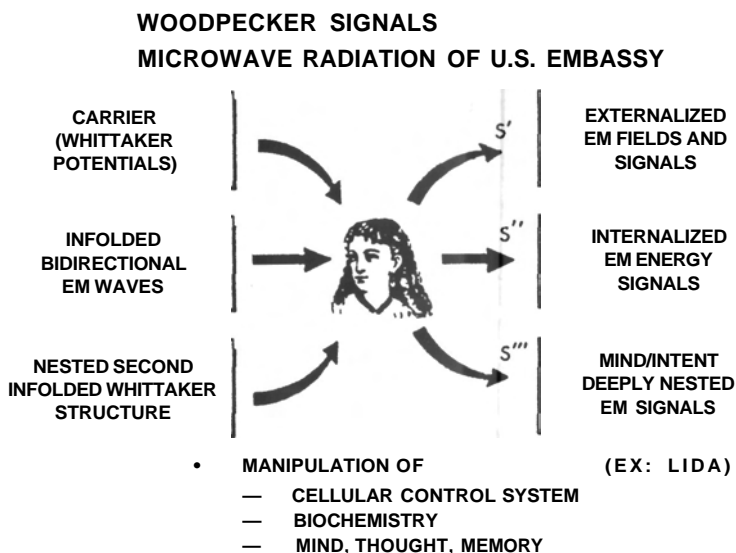


Figure 16. Strategic EM BW implications of world-wide targeting transmitters such as the Soviet Woodpeckers.

In epochal work, Dr. Valerie Hunt has already shown that human brain waves contain hidden order. In her seminal experiments, first each of several detected ELF frequency bands of human brainwaves was split into two replicas, and one of the replicas was delayed for, say, 6 milliseconds. In each frequency channel, the delayed and nondelayed signals are then beat together and recorded on an oscillograph. Under these conditions a startling pattern of *chaotic attracted* appears in the recorded oscillograph traces. This shows clearly that hidden deterministic substructures of hidden EM order exist concealed inside human brainwaves. Since Dr. Hunt has deliberately selected multiple frequency bands, this implies that this hidden order probably represents deterministically created and infolded multiple EM bidirectional waves (channels) is Whittaker potentials. *This is very strong evidence that the human brain utilizes Whittaker potentials and Whittaker-infolding in its internal communications — directly correlating with the Soviet approach by Kaznacheyev, Devyatkov, and Lisitsyn.*

In the latter 1960s S.K. Lisitsyn<sup>157</sup> pointed out that the Soviets had broken the "genetic code" of the human brain. (See Table 11). Lisitsyn reported that, in some 23 frequency channels in all, 11 were independent. This implies that a minimum of 11 independent infolded Whittaker bidirectional EM wave bands are required for the mind's control of all the functions of the body, both mental and physical. This lends further EM BW importance to Beck's observation of multiple Woodpecker channels — more than the "*Lisitsyn minimum*" required if infolded in a Whittaker potential wave and used to produce *almost any kind of mental or physical effect in distant targeted populations*.

Table 11. Lisitsyn's Report.

- THEORY DEVELOPED AND FITTED
- HYSTERESIS MEMORY LOOP
- CONTROLLED INDUCTION IN MIND
  - IMAGES
  - SENSATIONS
  - PREDETERMINED EMERGENCE
- 23 EEG BANDS
  - UP TO  $8.1 \times 10^{20}$  HZ
  - 11 INDEPENDENT CHANNELS
- HUMAN BRAIN CODE BROKEN (DECYPHERED)

If a distant brain is entrained by the Woodpecker, all 15 or so phaselocked Woodpecker channels, when infolded, would also be phaselocked into that brain, for possible Kaznacheyev disease induction or Devyatkov induction of behavior and cellular changes, etc. *It is also possible to produce direct images, emotions, thoughts, and memories in distant brains and personalities, via the Whittaker-structred potentials*. This was long ago hinted at by Soviet researchers in their heavily censored publications on "*biological radio*."

#### Explanation of EM Biological Trigger Windows

A straightforward explanation now is possible for the strange phenomenon of many biological-effect EM "triggers" being (1) very, very weak and (2) having a narrow window of EM amplitude of power. Below a minimum EM power level, the effect does not occur; and above a maximum EM power level that is only slightly higher, the biological effect also does not occur. Only within the narrow power window is the effect induced by the EM trigger signal.

This window effect can be readily understood when one realizes that by "weak envelope magnitude, or power," one is actually expressing and dealing with a function of the integrated (summed) power of the *total number of infolded Whittaker bidirectional planar waves*, both coherent and incoherent, contained in the structuring of an artificial potential. We further are comparing the degree of coherence of that potential's substructure to its degree of incoherence.

However, now we must use a quite different comparison and analysis process from that of ordinary analog signal theory. By analogy, this dependence upon the *number* of infolded signals is comparable to a *digital* process, such as that of the dot resolution of a printed picture. Also, it is an *imperfect* process. We are speaking of a case where each thing (dot) is a little bit fuzzy, not completely razor-sharp. Our problem is that now (1) we must have sufficient dot density (of our fuzzy dots) to have a clearly recognizable image, yet (2) we must not have so great a density (of our fuzzy dots) that the image is smeared out and obscured in a sea of common gray or black fuzziness. Table 12 summarizes the effect.

Table 12. Why EM Trigger Windows?

- WELL-KNOWN WINDOW EFFECT
  - WEAK EM TRIGGER SIGNALS
  - MINIMUM SIGNAL STRENGTH THRESHOLD
  - SLIGHT INCREASE OKAY (GIVES WINDOW)
  - LITTLE MORE INCREASE EXCEEDS MAXIMUM THRESHOLD
- CHARACTERISTICS OF
  - CHAOS (HIDDEN ORDER INSIDE DISORDER)
  - QUANTUM CHANGE (PHOTON) IS FUZZY
  - DIGITAL RESOLUTION OF FUZZY DOTS
- REFER TO LOGISTICS EQUATION (CHAOS)

So unless a certain number of coherent EM transverse waves (fuzzy dots) are infolded (printed), the pattern (image) to be engendered in the target is sufficiently incomplete that it cannot sufficiently "charge" and structure the dynamically-fed potentials of the cell. That is, the ratio of the amount of internally infolded signal (i.e., of the dots) to the amount of noise already in the infolded potential structure — the *signal-to-noise ratio*, or the *contrast* — must be sufficient to produce a stabilized signal (*resolved image*) within the potential's substructure, *over and above the noise that already exists therein*. Otherwise there is insufficient resolution. In turn, this accounts for the minimum value of the EM threshold for induction of a particular biological effect: it is the threshold where the activation signal complex becomes recognizable or detectable by the biosystem's internal Whittaker-channel detectors. At the minimum threshold, there are enough dots (infolded coherent biphotons) to discriminate coherently-structured gravitons.

Also, corresponding to each dot being fuzzy, each infolded EM wave is actually imperfect. It itself possesses noise distortion (fuzziness, or some lack of resolution) of its own. Remember, both the photon and the graviton are *statistical* entities; they are not at all "brick-like" particles. Therefore, not only does one infold a "pure EM activation signal" on each wave, but one also infolds some inadvertent "EM distortion" (fuzziness) as well.

As integration occurs and more activation signal is collected, additional noise (fuzziness, smearing) is also infolded inside the potential's structure. As collection continues to increase, the resolution of the signal is gradually deteriorated. When deterioration is sufficient, resolution of the image (pattern) by the biological system's detectors is no longer possible. This accounts for a maximum threshold at which the coherence of the signal has been lost.



Thus this accounts for the maximum value of the EM threshold for induction of a particular biological effect. Above the maximum threshold, internal signal resolution is lost. Additional power may produce gross energy effects (heating, chemical changes, mechanical damage), but will not produce precisely controlled changes via the mechanism of redirecting the body's own internal control mechanisms.

When the signal is within the window, the signal-to-noise ratio (and the resolution) is discriminated to produce a stabilized pattern/signal (image), and so this signal complex will activate and charge the system until the biological effect macroscopically emerges. That is, within the window the signal resolution is sufficient to produce *the information content of the field* that generates and activates the biological effect, *using the body's own internal control system*. Depending upon the particular physical/chemical/biological effect engendered, the biological response may be (1) immediate, (2) after a short "charge-up" time delay, (3) after a more extended "charge-up" delay, or (4) after a substantially extended "charge-up" delay that may be many years.

We now are equipped to understand the "window of magnitude" that most often exists in the weak EM induction of biological effects in living systems. Only at or above the minimum threshold does sufficient resolution of the pattern signal for biological activation occur. Above the maximum threshold, the infolded pattern or "image" is no longer discriminated.

The amplitude of the weak signal potential our normal instruments are measuring is in general a function of the summation of the simultaneous amplitudes of the infolded and hidden Whittaker EM waves inside that potential. Further, most of our instruments have nowhere near the response needed to accurately measure individual components of such an ultra-wideband series of frequency signals as evidenced by Lisitsyn. Therefore, in most experimental work in the literature, our instruments have grossly integrated the signal complexes over a relatively long time. That is, our instruments have almost never yielded anything of the structure we were trying to measure. *Presently most of this is hidden in what we simply see as very fine noise in our instruments, if we see it at all* Roughly, then, the measured amplitude of the potential we see is a (nonlinear) function of the number of infolded Whittaker EM waves, to the first order. The minimum number of infolded EM signals required for image resolution, together with the maximum number of infolded EM signals that must not be exceeded if image resolution is not to be lost, are the two primary factors involved in whether activation occurs or not. They create the minimum and maximum signal thresholds for inducing the biological effect.

### Relation to Chaos Theory

Most of this can be much more precisely stated in terms of chaos theory, but that is beyond the scope of this paper. However, for an indication, see Figure 17, which is a standard portrayal of the chaos inherent in the logistic equation. We can readily understand the minimum and maximum biological trigger thresholds from this figure. As can be seen, as the R value increases toward 1, there is no discernible pattern or "image" (signal). That is, there is insufficient resolution to detect the true signal order. At a threshold just past  $R=1$ , resolution rapidly improves so that a true, discernible analog pattern or signal (line) exists. Just before reaching  $R=3$ , the "fuzziness" spurts up again, until bifurcation occurs. Now there are two values, or two discernible analog signals, one of them nearly the mirror image of the other. At about  $R=3.5$ , fuzziness starts to increase again, this time due to another bifurcation. Thereafter bifurcation increases so dramatically that, between about 3.5 to 4, rapid loss of any recognizable analog pattern or signal occurs. From  $R=4$  on, the system is totally chaotic, and absolutely no recognizable "image" (signal) occurs.

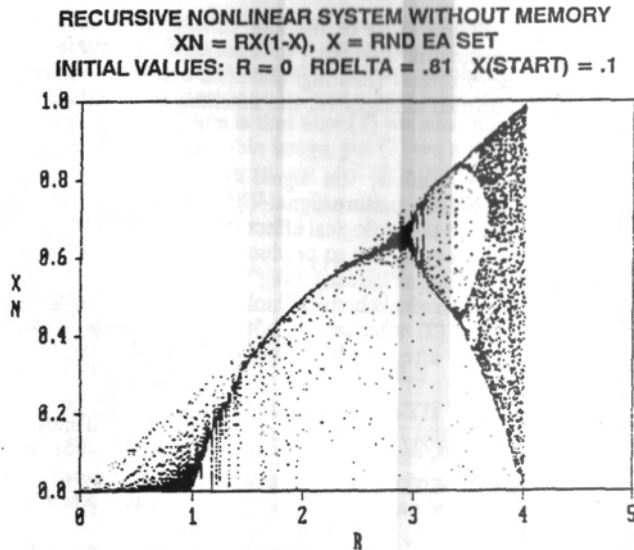


Figure 17. Chaos: The collected emergence of large-scale order from disorder. The apparent disorder actually contains hidden order.

*The human biological EM system works this way.* As can be seen, for activation/kindling there is a "window" with minimum and maximum values. Only in this window is there a discernible image (signal). Normal detectors tend to determine only the analog (envelope) value, not the individual structure showing the window where the coherent signal is reasonably resolved.

Experimentally, the situation is further compounded by the fact that the instrument itself also exhibits chaos effects such as the window of the logistics equation.

### More On Internalized Energy

Again, it should be strongly accented that *the true "living EM energy" of biological systems is internalized, infolded EM energy.* It is the infolded and hidden EM energy of the organized bidirectional EM wave systems inside the Whittaker potential. It is *photon-structured graviton* energy. This is not the externalized EM energy of the EM wave envelope, with which Western science is presently so preoccupied. This energy does not appear in the electrical engineering or electrical physics textbooks. Nonetheless, our health and our very lives depend upon it.

Plants, animals, the earth, the oceans, the rivers, the atmosphere, and the clean environment are continually activated and filled with this internalized, infolded EM energy. In its radiation, the Sun pours forth enormous amounts of it (Figure 18), which we never measure with *our* instruments. The earth, sun, and moon particularly — and the other planets to a lesser extent — form a giant, Whittaker-communicating system that provides the very lifestream that sustains us

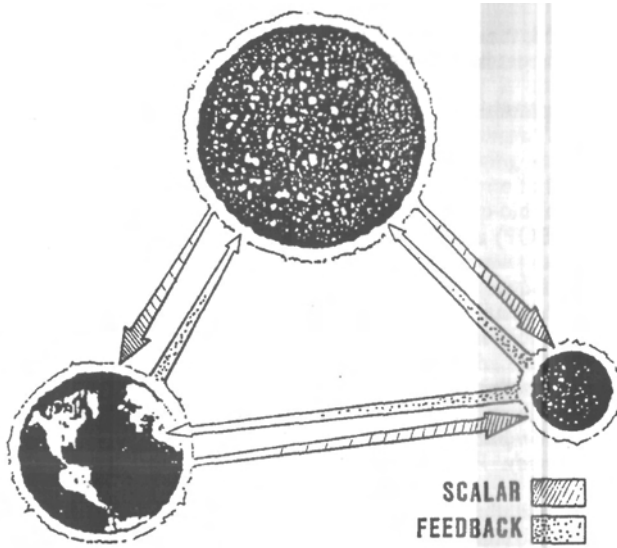


Figure 18. Earth, Sun, and Moon are Whittaker-coupled.

### Mechanisms For Evolution. Gaia. and Morphogenetic Field

For all the creatures and species on earth, the Whittaker structured potential mechanism provides the precise physical mechanisms for evolution, and for Sheldrake's *morphogenetic field*. Every creature continually contributes structures into the quantum potential for its own species, and the quantum potential for every species is part of the overall planetary quantum potential for all its living things.

Each species has its own quantum potential, to which every action, movement, thought, or incident of, by, and to its members contributes a minute amount of substructuring. Thus very, very slowly the species bio-quantum-potential adapts from the combined experiences of all its members, and the species "learns." Sudden wholesale changes, of course, can extinguish a species before this mechanism has time to adapt. But if the species has time, it will adapt to even harsh changes inflicted by its environment, and it will change and survive. The *species bio-quantum-potential* provides the exact mechanism for the species to change, adapt, and evolve to survive the slowly changing adversities of its environment.

It should specifically be noted that potentials organize into entire hierarchies of organization. That is, a potential is normally a conglomerate composed of many smaller potentials, each of unique Whittaker structure. The stress of a potential is rather analogous to the pressure in a mixture of gases; the overall pressure of the gaseous mixture is composed of *partial* pressures of the various gaseous components. Each gaseous component has its own individual contribution to the overall pressure of the entire gaseous mix.

In the case of the potential, the overall Whittaker structure of a particular potential is comprised of the overall Whittaker structures of its component potentials.

The point is, a quantum potential of one entity is composed of *the partial* quantum potentials of its component entities.

Note that each living cell of a biological organism is itself a complete biological organism. Each cell has its own individual bio-quantum-potential. Insofar as that cell is concerned, its "species" bio-quantum potential (BQP) is the body bio-quantum-potential of the whole animal of which the cell is a part. (Even organs of an animal have their own biopotentials, as does every physical structure and division of everything in the universe. And everything intracommunicates and intercommunicates via hidden EM energy.)

Successively deeper Whittaker potentials are nested inside the bio-quantum-potential for the cell, one for each next smaller level of interior structure. The end result is that this cellular hierarchical structure continues directly down into and onto the nucleus of each atom composing that structure. *This is the manner in which the life of a living system is attached to, and activates, the physical matter of its body. We have thus specified precisely what the living spirit of a body is.*

Communication between all living levels continually occurs via the mechanisms contained in the two Whittaker papers (W-1903: infolding external EM at one level into internal EM at the next lower level; and W-1904: unfolding EM at one internal level to the next outer externalized level). Thus in a true sense, all life on the planet is completely intercommunicative and intracommunicative. *Literally, the planet is a living being, and a special kind of Gaia exists.*

Particularly strong Whittaker-structuring communication occurs between an individual member of a species and its species bio-quantum-potential at fertilization/conception and at death. Thus at cell division (formation of a new cell), mitogenetic radiation is more strongly emitted, showing that increased communication has occurred in a (relatively) impulsive manner. The recorded experience of the body is communicated to the new cell at this time. At the death of the cell again mitogenetic radiation is more strongly emitted, showing that again impulsive communication has occurred. The recorded experience of the cell — particularly its most recent experiences — are impulsively transmitted at this time, from the unfolding Whittaker structures of its bio-potential.

Similarly, at the fertilization of an egg and the conception of an animal, biocommunication is impulsively exchanged between the newly conceived entity, the body of its mother, and the species bio-quantum-potential. At the death of the individual animal, a relatively impulsive communication again occurs between the cells of the dying body, the dying organism, and the animal's species bio-quantum-potential.

Thus it can be seen that the adaptation or evolution of a species is subject to both *slow* communication components and various impulsive communication components. The development of the bodily form of the members of a species thus can undergo *jumps* from greater "impulsive discharges" rather than just slow gradual change. That is, obviously a reptile species could not gradually develop a wing by small degrees. Instead, to develop a wing, the wing must appear at once. This can occur under heavy, sustained pressure on the species, stimulating and building a specific phase conjugate portion of the bio-quantum-potential (BQP) of the species. In the ghost forms existing in the vacuum potential, the form for that wing definitely exists, at does the ghost form for anything else that can be imagined. Intercommunication between the atomic nuclei of the living organism and the vacuum potential continually and strongly occurs there is a violent flux exchange at all times between these nuclei and the vacuum.

The external experiences being impulsively communicated back to the atomic nuclei from the species and its members thus continually diffuses on out into the surrounding vacuum potential. The surrounding vacuum potential's Whittaker structuring is continually activated by the Whittaker-structuring of the overall bio-potential of the individual animal. *Thus we have specified the specific mechanism for, and the form of, the long-sought "aura" of the living animal or person.* That aura is quite real, and it does exist. Further, knowing what it is, we can now develop instruments to detect and record it, including systems to analyze its contents. *Let it be strongly pointed out here that we are talking physics, not mysticism.*

On the other hand, we are most certainly not talking the present *rank scientific materialism*. To state it in more theological terms, *man is truly made in the image of his creator. And the image of the creator is the quantum potential of the vacuum.* Further, Man — as is every other living thing created by the Creator — is always and forever in direct but hidden communication with the image of his Creator. It is that image mechanism and its adaptive intervention that is the cause of all evolution. The Creator indeed made man — and everything else — out of the dust of the earth. And indeed he activated his creation with the "breath of life." *The new physics does not dispose of God; to the contrary, it marvelously and nondogmatically — and scientifically — reveals his ubiquitous presence and his ubiquitous hidden intervention.*

In so doing, the new physics also does away with the present scientific nonsense of dogmatic scientific materialism. We are not robots and machines; we are living souls. Our minds and our beings are not captured in the puny electrical discharges of our brains and nervous system, but in marvelous structures pervading the entire universe, everywhere, everywhen, in the internal Whittaker structure of every point in spacetime. Each has a spirit (that which motivates matter), and that spirit is a form in the Whittaker-structures of all the potentials of the universe. Further, the spirit is eternal. Destruction of the physical body does not alter the fact that the individual spiritual form and its every deed, thought, feeling, and experience exists for all eternity, in every part of the universe, directly in the form and image-potential of God. We indeed are eternal, and our true self is nonmaterial and immortal. The shabby treatment of our present scientific orthodoxy in attempting to deny us our spiritual heritage is refuted, and this refutation is scientifically testable. *We challenge the present dogmatism to practice scientific method and put it to legitimate experimental test.* Spend some money and some time, and do it right. The necessary instruments can be developed. The necessary tests can be performed. The necessary results can be shown. And, given those results, the present materialism must be cast aside as an infantile derangement. It is long past the time when science should put away such juvenile things, and get on with a more mature, adult world. If it does this, then science can contribute to the salvation of MAN. If it does not do it, it will continue to contribute to the destruction of Man.

We show now the causative mechanism for adaptive evolution.

In the gravitons composing the vacuum potential, one photonic element is "time forward" and one is "time-reversed." These are phase conjugates. Thus, any pattern consistently happening to the species diffuses into the vacuum potential, where its opposite or "negative feedback" component is automatically selected/created by phase conjugation.

*The bottom line is this: the external factors causing stress on a species automatically (but slowly) generate a time-reversed response in the activation of the vacuum potential. That is, the species' need-charge generates an activated phase conjugate response-charge, effectively charging up (integrating) the very ghostform or forms in the virtual state of the vacuum that would fulfill that need.*

As is well-known in physics, a virtual entity can become real and observable if energy is added to it. Thus the species-need is steadily causing just such "addition of energy" to the virtual state ghost form that answers that need. When sufficient energy has been added (when it has been

sufficiently charged/activated), the ghost form starts emerging into the observable state, in the conceptions (via impulsive discharge) taking place in the species. *Then species members start being born with that evolutionary change already fully established.*

This is the specific mechanism for evolution of the species. It explains not only slow adaptation, but also impulsive adaptation. It explains why evolution/adaptation occurs in jumps rather than in continuous changes. And it also explains why, in desperate circumstances when sufficient time still is available, rather drastic jumps can occur.

### The Unsuspected Deadly Nature of Internal EM Pollution

In addition to the "externalized energy balance" of nature, there is a heretofore unsuspected (by Western reductionists) *internal energy balance* of nature. This internal energy balance is of vital importance when we consider how the planet is being polluted. The most deadly pollution of this planet is the steady and increasing pollution of the internal "rivers of life" inside the biological potentials of the planet and all its living systems. That is, we are steadily polluting the very intercommunication and intracommunication fields that sustain life as we know it. In short, we are slowly killing the living mechanism in and on this biosphere. We are slowly sickening unto death, and no one even knows it.

Environmental and ecological issues cannot be adequately discussed and completely dealt with until our science develops a sufficient knowledge of internalized EM energy, its exchanges within the environment, and the overall internalized energy balance of nature and of our biosphere.

The importance of electronic smog — of the vast and increasing multitude of individual signals that now fill our environment — cannot be overemphasized, nor can its future impact. This smog is slowly producing an artificial quantum potential on earth, one that has a most deadly and lethal "jamming noise" structure, and steadily contaminating the natural quantum potentials and bio-quantum-potentials that are our heritage. This pollution even includes the internal pollution of the tri-system: the coupled Sun, Earth, and Moon. We are slowly poisoning the life mechanisms in this entire region of the solar system. As we charge-up the Earth's potential, that charge is diffused to both Sun and Moon through the hidden internal communicative bidirectional EM Whittaker structures. We are not only slowly extinguishing ourselves, but also the Triad system.

In biological systems the presence and effects of the increasing jamming of our living energy flows will be evidenced by anomalous effects, often by very slow effects for which we do not recognize a causal connection. Long-range detrimental effects from this smog are occurring now, such as extremely slow jamming of our immune systems, leading to a rise in arthritic diseases, immuno-suppressive opportunistic infections, etc. Also, such diseases as influenzas will slowly seem to become harsher and harsher. Indeed, new strains will appear, and they will be much harsher and more resistant to medical treatment. Continually stimulated, the immune system slowly begins to improperly react in and upon the body, and so the auto-immune reactions increase slowly, year by year. Leukemia — cancer (control disorder) of the blood — is increasing, as are other cancers. The sperm count of young American males has already decreased by up to 50 percent.

The real problem behind the puzzling and anomalous effects of video screen emissions that computer operators are exposed to is the fact that each electron striking the screen comes to an extremely abrupt halt, creating a very sharp individual EM potential gradient signal change, with very high frequency components. Added to the other frequency components in the tube — such as due to scanning of the beam, internal circuit operations, magnetic focusing, etc. — this means that the electrostatic potential emanating from the face of the tube is filled with a conditioned

Whittaker structure from all the electronic hash inside the computer, tube, and screen. This structure has a very harsh micro-microstructure of hidden sharp signals from the rather instantaneous stoppages of electrons on the screen. This is a "Whittaker hash", and its effects continually diffuse into the vision center, brain, and nervous system of the operator. The light from the tube is conditioned with this Whittaker structure, and when absorbed by the retinas of the eyes, it imparts and diffuses that hidden structure directly onto the nervous system and the surface of the brain. By diffusive activation (charging), this gradually spreads into the other parts of the body, particularly in and through the master cellular control system, and partially charges their potentials with the hash. After hours of exposure, kindling of the Whittaker structure in the physical system is sufficient to be expressed as physical changes such as headaches, vision effects, dizziness, etc. Very subtle blood tests should also reveal blood changes, particularly typical of weak auto-immune reactions, or typical of weak stimulation of the immune system. The more subtle parts of the master control system are affected as well. With repeated and daily exposures, the "hash activation" partial charge is sustained in the body, continually interfering with precise control mechanisms. Thus an increased incidence of fetus defects, responsive abortions by the body, and birth defects in infants of exposed pregnant women has a causative basis.

In a radar system, there is "splatter" and noise from all the various circuits, the transmitter, and reflections in the area. Harmonics, reflections from surrounding plates, panels and objects, and the continual interference of all these signals, form a Whittaker potential with a sharpened and dynamic "hash" for its internal structure. This hash continually diffuses into radar operators and maintenance personnel exposed to it. Diffusion of the jamming "hash" leads to slow, harmful variations in the master cellular control systems of the exposed personnel. Defective sperm cells can result. A higher incidence of cancer and leukemia results in operators extensively exposed to such "non-ionizing radiation" in their everyday duties.

Powerlines act as antennas, continually picking up and re-radiating all the electronic signals that impinge upon it, no matter how weak. Myriads of television, radio, power machinery, and other electrical/electronic signals are involved. Further, the power flowing through the line carries all the electronicsmog from any place along it to all the others (time-reversed components of the infolded Whittaker structure considered.) So it is a vast gatherer of electronic smog, which is infolded inside its potential and re-radiated everywhere along its length. With the criss-crossing of numerous new lines every year, and the drastic increase in communications signals, electronics signals, and electrical signals, we are slowly poisoning our entire biospheric living internal river of life. *We are steadily contaminating and poisoning the entire planetary potential, and each and every year we are dramatically increasing this deadly effect.*

In the modern home and office, we are particularly "blessed" with these interactions. Numerous electrical and electronic gadgets whirl and operate and create EM fields and weak EM radiation signals. The electrical powerline brings to our home all the internal patterns that have been impressed from afar; literally it brings us weak electronic hash from the entire earth. The light from our electric lights and lamps carries this hash directly into our retinas, brains, and nervous systems. The Whittaker structures are modulated into the sound from our radios and stereos, entering our ears and auditory systems, on into our nervous systems and brains. Watching television, the light from the tube contains all this hash and also the internal hash of its own circuits, tube, and its screen hash. Continual weak EM hash continually impinges on our skin by radiation from light sockets, appliances, and fixtures. If we sleep under an electric blanket, we sleep directly in an alternating magnetic field that penetrates even down to the nuclei of the atoms of our body, directly inputting the hash into our body's biopotentials. Even when turned off, the fixtures and appliances in our home continue to emit Whittaker standing potential waves, exposing us to weak but continual hash. Thus the same cellular changes, etc. that occur in video screen operators and radar operators begin to gradually occur in our bodies, from the EM pollution of our environment. Usually, however, we get a smaller "dosage rate" than the screen

operator or radar operator, and so the changes occur more gradually. Our unhealthy EM hash environment is already inducing leukemia and cancer, and immune system defects and diseases, gradually over a period of years.

"Hot spots" will obviously occur, where the dosage rate is increased because of particular reflections, reinforcements, interferences, etc. Such cancer and leukemia hotspots do indeed exist, without any presently known explanation.

In the "normal" weak EM noise environment that used to exist on earth, the minimum threshold effect provided security against the normal weaker background. The maximum threshold effect provided security against sudden larger "EM jamming" occurrences. In today's EM noise environment, both of these protection thresholds are becoming inadequate.

### How the Drug Culture Was Really Created

Much of our present younger generation is electronically "plugged in," to put it mildly. Heavy rock concerts at great volume blast into their listening audiences not only the rock music but also the EM hash from all the effects previously listed. They also blast a certain type of philosophy, of frenzied sex, violence, contempt for society, and rebelliousness. The guitar has been lowered onto the player's body so that its neck becomes a giant phallus. Frenzied movements of the player demonstrate overly full preoccupation with sexual stimulation and orgasm. The impact of these giant emotional mass experiences of the audiences is reminiscent of the huge Nazi rallies that Hitler used to so effectively condition a generation of Germans, and use them, once conditioned, to launch an attack on the civilized world that resulted in the deaths of over 100,000,000 people. Certainly orthodox psychologists and psychiatrists have already addressed the parallel of the rock concert to the orthodox understanding of mass conditioning. We will shortly address an unorthodox element of which the present scientists are unaware.

In addition to their mesmerized attendance of rock concerts, often youths continue their heavy listening schedule at high volume from their own stereos and transistor radios, often with earphones which can sustain the loud volume in their ears. In their automobiles, the youth oil today has installed huge speaker with powerful amplifiers, to continue their exposure to the volume and inadvertently to the EM hash. They also continue their sustained and dramatic exposure to the synthesis philosophy expounded by modern rock music and rock musicians.

But there is another, highly effective, subliminal conditioning effect that goes completely unrecognized. The information content of the rock music (and, as anyone knows who translated it, much of it has a "message" of violence and contempt for the female and for society) is also modulated into the internal Whittaker structures of the hash. *This "wired-in generation" thus is continually conditioning itself by a new and unique process. It is directly conditioning the memory personality, and deep unconscious mind by charging and activating the biopotentials on the atomic nuclei directly.*

There already exist forces hostile to the structure of Western society that secretly know the semblance of this, and know that the present electronic conditioning of the youth of our society can undermine all its values. There is thus a hidden threat to our youth and to our society. Both are already being manipulated, and almost no one in orthodoxy seems to suspect it. Certainly the mass news media do not take up the cudgel; they are far too busy making money from the very advertisements that continue to plant the seeds for continually conditioning the children for each forthcoming new generation.



We have a drug problem, and we shall continue to have one, no matter what "swat teams" and "special operations forces" we muster against the drug barons. *Much of the youth of the present generation has a different culture, and a different cultural background, and a different attitude toward drugs, sex, and violence than anything the older generations knows or can relate to.* Rape, violence in our cities, contempt for society expressed as vicious attacks on old people and helpless persons, increased child molestation, and expression of sex-in-violence such as "wilding", are the end results of this continual conditioning. We are speaking of a matter of degree; as the degree of heavy internalized conditioning increases, the degree of criminal expression of this inner content increases. Just as the great psychologist Jung observed in his patients the increasing dark content of the unconscious mind being conditioned into Germans by Nazism, and predicted a direct and violent overt expression of it (in the Second World War), so one sees today an increasingly violent and crime-ridden future for the cities of America, from the steady manipulative internalized EM conditioning of our youth.

But, the reader may ask, is all this really true? Can one explain how and why we acquired the drug problem in the first place? The answer to both questions is yes.

The real cause of the present drug problem in America is never mentioned or addressed. It is not present in the learned but biased studies of our great think tanks. It is not known or realized by our drug enforcement officials. Neither the Congress nor the Executive Branch is prepared to deal with it. (In fact, because of the financial implications, they would most probably hamstring any effort at exposing it and dealing with it directly, just as they hamstring efforts to declare alcohol and tobacco addictive drugs.)

*The real genesis of the drug problem in America is the pain reliever and pill advertisements on television particularly, and to some extent, those on radio and in motion pictures.*

Think of it this way: In the 1950s and 60s America became "televisionized." Most households — even those of the poor — obtained television sets. The reason was for entertainment, and the intended enrichment of our lives. In fact we got that aspect of television, and we also got something far more pervasive and far deadly. We had taken a viper to our bosom, so to speak.

Americans were enraptured with television, to put it mildly. The television set became the center of entertainment and the center of attention in massive numbers of households. Millions of little babies, with their little formative minds absolutely pliant and absorptive, watched thousands of hours of television — including thousands of hours of television pill commercials and pain reliever commercials. Always depicted were situations where *life's problems have a chemical solution*. Has mama had a trying day, dropped the iron, and dropped and broken the dish of food? Pop a pill, a soother of the nerves. Got a headache from tension or sinus? Pop a pain reliever. *Pop a pill, baby! Life's problems are solved with a chemical solution!* That was the unceasing message that was pounded into all those little absorbing, non-censoring, non-evaluating minds. *Already in a passive state and highly suggestible, these little minds absorbed the message into their deepest unconscious, repeatedly, continually, as the norm for society and the preferred, ideal behavior.*

The pill merchants, in their ubiquitous greed, really did a number on our children. They conditioned an entire generation — and continue to condition each new one — that *chemicals are the solutions to life's problems*.

It's bad enough conditioning if one just considers the classical conditioning mechanism in the passive state, a la Hitler. But when one also considers the *internalized* conditioning of the infolded Whittaker structuring, these kids got the whole enchilada.

And this was further supported by the children observing adults — often their own parents — with a dependency on pain relievers, alcohol, nicotine, and aspirin and pain relievers. The medical profession has long since been powerfully conditioned and subverted by the large drug companies that allopathic medicine, with an occasional surgery, is the primary constitution of the practice of medicine. Anything electrical, of course, is automatically labeled a fraud, and persons attempting to investigate the possibility of electromagnetic healing are severely chastised, just as are naturopaths, chiropractors, holistic practitioners, etc. Indeed, the EKG and the EEG were once labeled as frauds, and their practitioners as charlatans. So also was physical therapy, and its practitioners were hounded and prosecuted. Allopathic medicine is a monopoly and an oligarchy; it has subverted the state and uses the power of the state to enforce its own dogma.

The big drug companies love it. Tons of money are made, milking the public as a milk cow, selling them lucratively priced drugs by the trainload. The doctors get rich. The drug companies get rich. The cow gets milked. The lawyers get rich by suing the doctors to "share the proceeds." Best of all possible worlds. The drug commercials contain to blast their way from television into the young, pliant, passive minds of infants, with thousands and thousands of hours of the message that *chemicals are the solution to life's problems. They are good. They heal people. Society approves. See your friendly drug merchant.*

Now of course there is a place for allopathic medicine. Properly used, some drugs can be beneficial. None of them can do a thing for healing the body; at best, they can suppress the symptoms of a disease and allow the body time to muster its own recuperative and healing forces. The blunt truth is that the natural mechanisms of the body are what heals it, not the drugs. The drugs, however, may be judiciously used to assist in this process. In this paper, in castigating the drug advertisements, we are speaking of *the degree of near-total reliance on using drugs that is advocated*. Commercial drug advertisements constitute a giant, infectious disease and they should be ruthlessly eliminated from our television and radio commercials. Otherwise, these harlots will continue to seduce each succeeding generation, and we will continue to have a giant and increasing drug problem because the *demand* will continue.

The answer isn't spending more money and milking the taxpayer. The answer is to root out the source of the infection. And the answer is also to control the infectious agent so it does not rear up and strike again.

The formative minds of our infants should not be allowed to be playgrounds for the drug merchants to romp in and sew their deadly infection. We deserve better than that. Our government watchdogs ought to get off their posteriors and pass legislation that outlaws all such incessant propagandizing of our babies, children, and adolescents. It is a crime against society to *deliberately engender the need* for drugs in our children, just as surely as it is a crime for someone to *sell* them illegal drugs. Eerily, our warped society declares war on the illegal drug producers while ignoring the very agent that created the problem in the first place, and continues to create it.

Just as industry once practiced child labor and horrible exploitation of the nation's children, the present "legitimate" drug companies, doctors, and television and advertising industries are also exploiting our children and corrupting their minds. Is financial gain worth that much? Are we so mad that we cannot see what we are doing to our children? What we have already done to many of our children, now the young adults of America? Is there anyplace in America where the insidious damage has not been done? Is there anyplace in American where the need for illicit drugs has not already been created, and is continuing to be created?

In God's name, wake up, Americans!. How long will we allow these men in dark blue suits and with corporate mentalities to exploit and mutilate our children? And for dark, foreign forces to

deliberately augment and manipulate our children with suggestion and conditioning that simulate that mechanism?

One wonders. And ponders. And takes up one's pen and writes. Does anyone heed the message?

To stop this thing is simple, but it will require a very long time. We have to get the pill advertisements completely off television and radio. We must, whether we like it or not, censor the content of the deliberate, mass conditioning of the minds of our youth with hate, bigotry, abnormal sex, and violence. As a man thinketh in his heart, so is he. Condition the heart (the unconscious mind), and you form the person. Must we allow our children to be deliberately manipulated and conditioned by hostile and detrimental forces? Let's at least get the drugs, hate, bigotry, and violence out of there. Let's attack the drug problem at the heart, where the need for it is being created. Let's crush that serpent and destroy it, and prevent it from biting and infecting our babies, children, and adolescents.

### Ubiquity of Internal EM Energy

As we stated, internal EM energy is ubiquitous. It is everywhere, all-pervasive.

The inclusion of internal exchanges, of course, is completely anti-reductionist. Now you are not just what you are, but also what everything and everyone else is as well. Ironically, present Western biology seems bent upon the road back to hard reductionism. This can only reinforce and sustain our presently primitive and inadequate "cut 'em, drug 'em, and burn 'em" medical science, as well as our inadequate knowledge and consideration of the internalized energy of living systems and our irreplaceable biosphere.

We also point out just how fundamental the Whittaker-based methodology is. In a very nice summary paper dealing with the remarkable capabilities of recursive methods,<sup>158</sup> Soviet physicist V. K. Ignatovich points out that recursive relations are involved in a wide variety of fundamental physical problems, including molecular gas diffusion, scattering of a quantum mechanical particle from potentials, etc. There is also direct involvement with the Schroedinger equation itself. Indeed, one of the striking features pointed out by Ignatovich is what can only be called a Whittaker-structure (of superimposed bidirectional plane waves going in opposite directions) comprising the potential utilized in the Schroedinger equation. Interestingly, in the infinitesimal gaps where the potential is zero (mathematically, such gaps could essentially be inserted at will), the wavefunction itself is comprised of this bidirectional Whittaker structure, and the only difference between two wavefunctions in two gaps is a phase factor that is calculable.<sup>159</sup>

In short, deterministic Whittaker-infolding of bidirectional EM plane waves is the key to direct engineering of the Schroedinger equation itself — hence of *all physical change*. From the very beginning, living biological systems have utilized Whittaker-structuring in their deepest biological control systems. This has allowed them to utilize very minute voltages and currents, yet precisely communicate these incredibly weak signals through a very "noisy" ordinary EM environment inside the body.

The emergent picture is this: (1) the normal externalized EM force fields represent dynamic, externalized bleed-ins and bleed-offs (by acceleration of charged particles) of the external amplitudes of scalar potentials, *without* affecting the fundamental infolded substructure of the potentials. Such force fields represent primarily the *externalized* EM dynamics of the potentials, the part where gravitational potential turns itself into electromagnetic force. (2) Whittaker-infolding of such EM forces in bidirectional EM wave pairs inside the scalar potentials allows

calm, smooth, deterministic communication between all the parts of the biological organism, normally without undue disturbance from the externalized maelstrom of "first order" physical reality (single photon interactions with matter." These hidden Whittaker structures represent the *internalized* EM dynamics of the potentials and their intercommunication and intracommunication.

### A Very Different Physical Reality

While beyond the scope of this paper, we point out in passing that consideration of the internalized EM energy of biological systems (and of the universe) gives a quite different kind of "physical reality picture" than the normal first-order reality. Biological functioning in this different reality realm therefore exhibits quite different characteristics from the normal *externalized* aspects of biological actions.

Direct mechanisms for mind, thought, emotion, memory, hidden inter- and intra-cellular communication, etc. result from the new approach. In addition, mechanisms for previously rather mysterious parapsychological phenomena — such as psychokinesis, precognition, and postcognition — also result. Further, it is now clear why heretofore such phenomena have been demonstrable only statistically and even then only minimally. The true deterministic EM signals involved were very, very weak infolded Whittaker structures inside scalar EM potentials. Since our present instruments have all measured the much more powerful *externalized* EM energy, we have only been able to statistically discriminate (and very weakly at that!) the emergent order in rather large-scale *integrated* chaos effects. Thus for the most vital living functions of the organism, we could only show weakly ordered and statistically significant small deviations from randomness. We stress that all these "internalized reality" subject areas, regardless of how mysterious they have previously seemed, are now open to direct investigation and even direct engineering. We further stress that spacetime, quantum change, the Schroedinger equation, parapsychological phenomena, and physical and mental reality are all now unified and accessible to scientific investigation and direct engineering.

### Solving the Quartz vs. Glass Transmission Problem

In passing, we point out a solution to one of the problems that have puzzled Western analysts for over two decades. In the Kaznacheyev cytopathogenic experiments (as shown diagrammatically in Figure 19), disease and/or death is induced into one cell culture by optical EM radiation emanating from an adjacent but environmentally shielded contaminated culture. Similar disease-induction experiments have been successfully performed in West Germany, Australia, and at least by one U.S. researcher.<sup>160</sup> Kaznacheyev's results were obtained by weak optical radiation through a thin quartz window, but not through a thin window of ordinary glass. He reported the discovery of weak mitogenetic photons in the near-ultraviolet (near-UV) which purportedly induced the effect.

In West Germany, University of Marburg researchers duplicated the experiment, ostensibly discovering weak mitogenetic photons in the IR frequency region, which purportedly induced the effect.

However, it is not nearly so simple as measuring single-frequency photons. We are dealing with internalized energy, and hence with the *infolded coupled-photon graviton* structure of Whittaker potentials. This hidden infolded structure is the information content" of the radiation emanating from the diseased cell culture — gravitoncontainingcontaining hidden EM photon information

that can induce the same disease or physical conditions in the targeted cells if delivered to them intact. Further, the bidirectional EM wave structure of the Whittaker potential consists of pairs of contratraveling EM waves *multiplied* together, hence *modulating* each other and locking together. To form gravitons, multiple photons are locked together in n-tuples (both in number and in harmonic frequencies) by this process. *All gravitons containing information must have harmonic substructures, else modulation of monochromatic photons did not occur to produce them.*

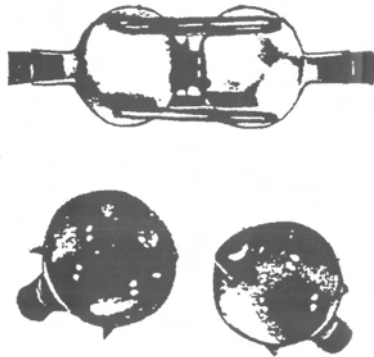


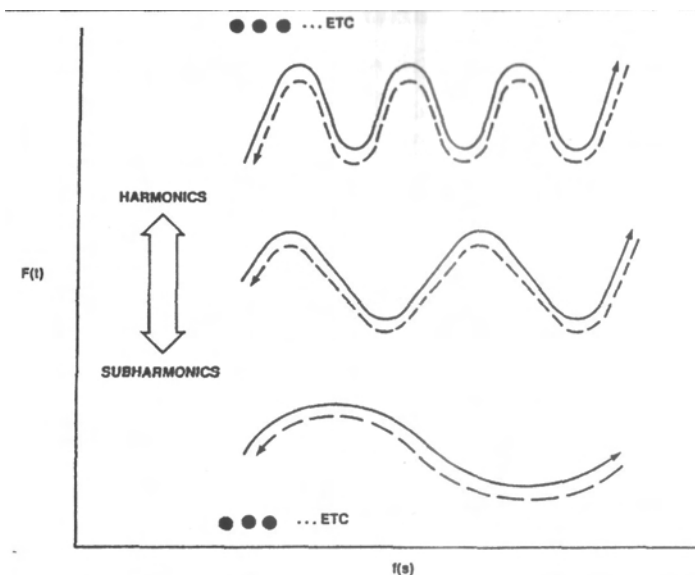
Figure 19. The Kaznacheyev apparatus for cytopathogenic experiments. Many thousands of experiments were conducted by two military institutes.

Another way of saying the same thing is that gravitons represent a special, linked-photon, averaged lattice in the vacuum flux. Horizontally (spatially) the photons are linked into gravitons by bidirectional EM waves; vertically (time-wise) the photons are linked in frequency by harmonic and subharmonic oscillation. Figure 20 shows the general scheme of this Whittaker **lattice**.

The reader should be at pains to understand, however, that the lattice structure shown in Figure 20 is *not* fixed, but consists of averaged equilibria in the fiercely boiling vacuum virtual particle flux. The fierce vacuum flux actually consists of the continuous dynamic interference of myriads of just such Whittaker structures created in the macroworld. Each part of the macroworld, on the other hand, is just an equilibrium condition in that *overall* flux cauldron. As can be seen, according to this model, physical reality is a hologram, and in an eerie fashion Mach's principle rigorously applies.

The point is, both modulation (infolding) and subsequent demodulation (outfolding) of the internalized EM energy are operations that only occur in *nonlinear* materials. A nonlinear material is one which, in reaction to an introduced monochromatic wave, produces harmonics in addition to the fundamental frequency. Being entirely a *nonlinear-based effect and mechanism*, the cytopathogenic (Kaznacheyev) effect requires *harmonics* if it is to be transmitted and exhibited. It is not the singular EM force fields which carry the information for the cytopathogenic effect; it is the multiple internalized EM-waves in the substructures of Whittaker potentials that carry it. A *harmonic series of bidirectional waves* must carry it. Hence to induce the disease in the second sample, one harmonic interval is the smallest bandwidth that must be

infolded in the diseased cells, transmitted intact through the window to the targeted cell culture, and absorbed and deposited therein. Further, between-harmonics signals are jamming noise, insofar as the harmonic Whittaker structures of a particular pattern are concerned. This explains why Constable and Gambill were able to occasionally take paranormal photographs through filter glass that was transparent to IR and UV, but opaque to the visible spectrum in between. UV is a first harmonic of IR. The filter glass passed one harmonic interval, and blocked out the outside and inside "jamming" signals.



**Figure 20.** The Whittaker-structured graviton lattice of vacuum/spacetime. Breaking the time sync of the photon structures accounts for the "collapse of the wave function" and leads to photon interaction. In uncurved spin-2-graviton spacetime, one photon is measured, and the antiphoton produces Newton's third-law reaction force, usually just recoil in the measurement instrument, which is ignored.

Quartz passes both IR and UV, in addition to the visible spectrum. Kaznacheyev's experiments were performed in the dark, and so the jamming noise of the visible spectrum was absent. Therefore the thin quartz window passed one optical harmonic, because the UV is twice the frequency of the IR.

That is, the thin quartz window was able to pass *gravitons* — coupled photon/antiphoton pairs - rather than just individual photons. The gravitons had been emitted from diseased cells, and the exact Whittaker structure for the disease was contained in the gravitons. In these gravitons, their internal photons retained their spatial and harmonic coherence and correspondence, which retained the disease pattern. When the disease-structured (cytopathogenic) gravitons were deposited in healthy cells shielded from the visible "jamming" spectrum, the biopotential of the healthy cell structure gradually charged up and *became activated with the Whittaker-structured disease pattern*. Thus the specific disease was gradually kindled in the targeted healthy cells.

Normal window glass, on the other hand, does not pass a full harmonic interval. That is, it busted up the gravitons, separating them into weak photon emissions that did not retain their previous spatial and harmonic coherence in a structured-graviton spacetime lattice. That of course destroyed the photon-to-photon coherence and the infolded "information of the field" that carried the specific disease structure. Therefore when the two cell cultures are separated by thin window glass, the graviton pattern is broken up and the disease is not kindled in the targeted cell culture by mitogenetic photons passing through the windowglass.

Hence the disease can be transmitted through the quartz, but not through the thin windowglass. With a quartz window, the disease is transferred *electrogravitationally* by the structured charge of the arriving intact gravitons. With a windowglass window, the gravitons are busted up and the disease pattern lost in the window, leaving isolated photons to arrive in the targeted cell culture and be deposited. Since the disease information has now been lost, the targeted cell culture does not contract the disease.

Actually, the effect induced by infolded harmonic radiation in the optical range can also be achieved in the appropriate microwave range, so long as properly structured, *coupled-photon/antiphoton* gravitons — including the necessary harmonics — are maintained. The major mechanism for this "translation to different frequency bands" is already well-known in the theory of forced oscillations, but it is little-utilized in normal engineering. The translation mechanism is *subharmonic oscillation*.<sup>161</sup>

In subharmonic oscillation, a frequency that is a subharmonic of some higher (even much higher) resonant frequency can trigger the higher-frequency oscillation. Subharmonic oscillation is particularly applicable to living systems, because (1) their physical structures are highly nonlinear, (2) a great number of biological oscillators are nonlinear, (3) in general, nonlinear oscillators may vary both their frequency and their amplitude, particularly as a transient effect, (4) nonlinear oscillators are characterized by an initial transient period followed by the attainment of a stable period, (5) subharmonic frequencies in highly nonlinear materials will richly generate harmonics, so that the particular required harmonic of interest will very probably be produced, (6) the initial transient period of the nonlinear oscillator often acts as a sort of *harmonic frequency sweep* to simulate many harmonics, including the one of interest, and (7) the transient stimulus of the desired harmonic overcomes "static or initial" damping so that only the much-lower "dynamic" damping is produced.

*Subharmonic oscillation is very important in Whittaker-structuring. A Whittaker-structured potential is already harmonically structured — essentially from near 0 Hz to near infinity (as was pointed out by Lisitsyn in a disguised manner). The Whittaker-structuring is a spatial and harmonic structuring of a partial potential component of the total spacetime potential. Subharmonic resonance plays a major role in this structured lattice — far more than we have previously suspected in our study of subharmonic resonance in nonlinear gadgets.*

The implication of high biological nonlinearity and subharmonic oscillation is that Kaznacheyev cytopathogenic optically-induced effects can readily be translated to cytopathogenic microwave-induced effects — because they already are!. An optical Devyatkov information substructure can also be translated to a microwave Devyatkov information substructure. Further, if the optical Kaznacheyev cellular disease-inducing signal sets captured from a diseased cell culture are phase-conjugated, this yields a *specific curative signal complex for that specific disease*. This optical curative signal structure can then be subharmonically translated and Whittaker-infolded to yield a curative microwave Devyatkov information signal. This is the basic mechanism for direct engineering of EM healing apparatuses, such as were successfully developed by Antoine Priore and properly tested by eminent French scientists working with him, in the 1960s and 1970s.<sup>162,163,164,165</sup>

The near-total EM cures for cancer, leukemia, AIDS, and hosts of other debilitating diseases too numerous to mention can be developed in rather straightforward fashion, given the funding, scientific team, and facilities to accomplish the task.

### Detection is Actually Binary

But how can all of this have escaped our finest researchers and theorists for so long? We present a brief presentation of why this has eluded the attention of our scientists.

First, though not too well-known, all detection is actually *binary*, although in almost every single detector only one part of the detected two components is utilized for the "measurement."<sup>166</sup> The other part of the binary detection occurs in the atomic nucleus, and is ignored or discarded in almost all "measurements" we presently perform, and in almost all the instruments we build and use.

Note that each element of the EM structure of the Whittaker potential is binary; there are two bidirectional waves in each one. In the linear situation, our normal instruments demodulate a photon and an antiphoton from each binary *graviton* structure of this binary channel. In its output, the instrument separately utilizes the externalized (electron-moving) wave or photon as the "detected signal," while utilizing the other demodulated antiphoton or antiwave to produce the "recoil of the atomic nuclei" of the instrument itself — in other words, to produce Newton's third law reaction force! Indeed, the universality of Newton's third law is *prima facie* evidence of the existence of the coupled-photon/antiphoton graviton *prior to demodulation and measurement of photon interaction effects*.<sup>167</sup> Classical electromagnetics has always been a derivative of the real unified-field "electromagnetics" that actually exists in nature, and we have always been misled by the very EM instruments we are so proud of!

In a nonlinear situation, on the other hand, we are inevitably dealing with a harmonic situation. Any photon incident into a highly nonlinear material will generate harmonic photons, each of which will generate further harmonics, etc. Further, the nonlinearity generates time-reversal (phase conjugation), so that time-reversed replicas of these harmonic spectra are also generated. But nonlinear materials are also modulators and demodulators. Hence the nonlinear material is continually infolding and unfolding the Whittaker structure harmonics. In our *normal* detectors and detector theory, we discard the entire infolding aspect of the situation, and usually much of the rich harmonic spectra as well. We certainly fail to recognize the continual creation and annihilation of dynamic photon-structured gravitons. For those, we simply treat the gross *captured EM energy* aspect, in that it determines the overall envelope magnitude of the scalar potential.

The point is, in a nonlinear optical graviton situation which must involve infolded IR and UV photons, our *photon* detector busts up gravitons, and it may measure either a UV photon or an IR photon, depending upon the mechanics of the situation. It will not normally "measure" or indicate both, since it discards and neglects one or the other as its own "instrument recoil." And it will tell us almost nothing of the very rich dynamic graviton structuring and exchanges that are occurring. It will give us no picture at all of the infolded Whittaker structure and the internalized EM energy order.

*We have always been applying nonunified EM technology to unified field theory problems anyway* Hence for three decades Western "single photon" scientists and engineers have remained completely puzzled and baffled by (1) Kaznachyev's "*graviton is a multi-photon-unit and in structure can be deterministic*" work, (2) Devyatkov's "*the particular photon structure of the graviton is the information content of the potential/graviton field,*" and (3) the microwave radiation



of the U.S. Embassy in Moscow. We also were puzzled by (4) the strange Petukov/Toth episode involving the Soviet classification of a paper on bio-particle emissions and "little pieces of the vacuum medium." And of course we never understood Tesla when he adamantly insisted that the EM waves in vacuum were not transverse but were *longitudinal* waves, or EM "sound waves," as he referred to them. And all our textbooks today utilize macroscopic E- and H-fields in the vacuum — when no such thing exists now or ever existed. E- and H-waves are *matter waves*, usually of the conduction electron gas in our conductors. They are *not* what is coming in from the vacuum and interacting with that conducting electron gas in our detectors. However, since our instruments actually detect and measure the movement of the conduction electrons, then indeed we detect and measure E- and H-fields — *inside our instruments, not in the vacuum*. Isn't it a bizarre aberration of scientific thought — just as Tesla stated — that all our science and engineering continues to teach and accept such a fundamental mistake?

Note that a gradient in the graviton field (in the scalar EM potential) must involve the translational exchange of photons between adjacent standing gravitons. When one understands the unified-field approach, it is totally to be expected that the diseases induced in the Embassy personnel in Moscow would not occur where E- and B-fields ("*single-photon-interaction-with-matter*" field stuff) were present, but only where these single-photon fields were not broken out of the Whittaker potential ("*stabilized multi-photon-coupling* field stuff) before reaching the targeted bodies. In other words, the diseases occurred where the *potentials persisted*, and where the force fields (the bleed-offs of the potentials) were absent. Johns Hopkins researchers found this to be precisely the case, but did not realize and consider the *EM potential* aspects. Their "photon detectors" destroyed half of the actual *structured graviton* mechanism involved. Hence they erroneously concluded that it was not the microwave radiation that was causing the anomalous diseases and health changes in Embassy personnel.

They rightly concluded that it was not the monocular EM photon field component of the microwave radiation that was the inducing agent. However, they assumed that there was no other component of the radiation that could have been involved; i.e., they assumed that the force fields and the microwave radiation fields were one-and-the-same, totally. Had they known of Whittaker-structured potentials as the explanation of Kaznacheyev's cytopathogenic effect, they most certainly would have considered the persistent potentials. In that case, *from the data and measurements they had, they would have concluded that it was the multiocular EM photon-structured Whittaker potentials that were the inducing agents*.

### The Problem is Our Rigid Mindset

It is simply incredible when hundreds of thousands of Western PhDs are graduated in electrical physics and electrical engineering, and hardly a single one knows that what he was taught as "Maxwell's equations" were not *Maxwell's* equations at all: not a single one of those

Heaviside/Gibbs critics ever appeared in a book or paper by James Clerk Maxwell.<sup>168</sup> And almost nobody checks! Almost no one goes back to Maxwell's *quaternion* theory to see whether or not Heaviside and Gibbs "got it right" in their vector interpretation. With the exception of Dr. Henry Monteith,<sup>169,170,171</sup> and a few notable other scientists, almost no one in the West seems to have previously noticed that Maxwell's original quaternion theory was already the magic unified field theory of G and EM that everyone is supposedly seeking! And it is already in an *engineerable* format. You can engineer it on the lab bench and it works.

Our real problem is our dogmatic scientific mindset, particularly with respect to electromagnetics. In the West we seem to think we already know everything, and that the Soviet scientists are just a bunch of ignorant peasants still trying to clean the mud off their boots.

Those same scientific "peasants", however, have always been the leading nonlinear mathematicians and nonlinear scientists of the world — and they still are. We've really got a lesson or two to learn from them after all. Let us hope we do so before it is too late for our survival.

### The Soviet Electromagnetic BW Threat Is Real

The Soviet threat in electromagnetic biological warfare is real. It has been developed over a period of at least 40 years. The trace is clear. It is also clear that biological warfare is now, and has been for some time, a preferred option for the Soviet Union. It is rapidly becoming a preferred option for much of the Third World today.

We have seen that the "new" electromagnetic biological warfare has already been used to attack and kill Americans — even Americans of very high rank, such as several U.S. Ambassadors to the Soviet Union. However, note that this attack has also been *slow-acting*. The Soviets have taken full advantage of the important American national characteristic of not reacting to a slowly creeping threat.

Meanwhile Gorbachev, who is perhaps the greatest propagandist the world has ever seen, has made sweeping concessions and unheard-of changes. U.S. leaders, even of the Department of Defense and the President himself, have been taken in by the Great Charmer. The heavily liberalistic U.S. news media seems almost ecstatic in their perception that the end of the cold war is here. Indeed, during the month of November 1990, the Cold War was officially declared dead.

Glasnost is the new phrase that is being repeated by our news media, in a growing euphoria of *peace in our times*. Neville Chamberlain would be proud of his new protegees.

As far as Glasnost goes, we had better keep our powder dry and recall the following quote:

"War to the hilt between communism and capitalism is inevitable. Today, of course, we are not strong enough to attack... To win we shall need the element of surprise. The bourgeoisie will have to be put to sleep, so we shall begin by launching the most spectacular peace movements on record. There will be electrifying overtures and unheard-of concessions. The capitalist countries, stupid and decadent, will rejoice to cooperate in their own destruction. They will leap at another chance to be friends. As soon as their guard is down, we shall smash them with our clenched fist."

Dimitry Z. Manuilsky  
Lenin School of Political Warfare  
Moscow (circa 1934)

## NOTES AND REFERENCES

1. The closest thing to gravitobiology is the present photobiology, which deals with the biological effects of ordinary photons and electromagnetic waves. Photobiology (PB) is a small subset of gravitobiology (GB). GB also includes the biological effects of hidden coupled-photons and hidden bidirectional EM waves inside scalar EM potentials — infolded inside spacetime itself. Since these hidden EM channels are utilized by the living biological system in all its primary control systems — including for cellular control and mind control — then GB drastically extends PB.
2. Gravitobiology, short for *electrogravitobiology*, is the as-yet-embryonic science that deals with biological effects/uses of the uniGed electrogravitational Geld. It is understood that the unification of electromagnetics and gravitation is accomplished at the most fundamental level, that of the quantum particles of the fields. The graviton is considered to be composed of photons, but variable in size, dependent upon the number of photons comprising the graviton *on the average*. Thus the graviton is dynamic in structure and magnitude, contrary to present treatment in physics. To speak of a *discrete graviton*, then, having a stable *average spin* is to speak of a time-averaged entity that is a stable equilibrium state/structure in the violent virtual particle flux of vacuum.
3. This of course describes a dynamic holographic reality.
4. Present quantum field theory utilizes the photon as the quantum particle of the electromagnetic Geld, and the graviton as the quantum particle of the gravitational Geld. Each quantum particle is treated as quantized in spin, so that its spin never varies. However, in gravitobiology (GB) the graviton (and indeed, the photon as well!) is considered to be dynamically varying at each instant, at an incredible rate. When time-averaging yields discrete stable spin values, these are regarded as gravitons. Thus the individual, momentary graviton may have spin of two, more than two, or less than two, in contradistinction to present quantum Geld theory. In gravitobiology the graviton is *statistically discretized* but not actually *individually quantized*.
5. Gravitons are time-averaged envelopes, and can move at any velocity — similar to phase waves. What is moving in an electrogravitational wave is photon coupling and decoupling.

The reader is cautioned, however, that in physics the graviton is still not a well-defined, well-understood, and agreed-upon entity. Whether or not a graviton exhibits mass or is massless remains an open question. Linearity versus nonlinearity of the graviton is also yet to be totally resolved. The state of the subject in present physics is thus unclear. Indeed, it can be surmised that, if gravitons exhibit mass, then gravitons in deep space could possibly account for the cosmological "missing mass" needed to close the universe. As an example, for a discussion that favors graviton mass, see O. Costa de Beauregard, "Massless or Massive Gravitation?", *Foundations of Physics Letters*, 3(1), 1990, p. 81-85. As an example to show how concepts such as "photon" and "graviton" have a very complicated background that affects whether or not unification of physics can be accomplished, see Horst-Heino von Borzeszkowski, "Remarks on the Physical Reality of Gravitons," *Foundations of Physics*, 20(4), 1990, p. 435-445.

6. Presently, the only basic definition of modulation simply states that, when one wave modulates another, the two lock together in one fashion or another as a single, more complex wave. When such a complex wave is demodulated, the two locked-together waves are separated from each other to become independent waves. The exact

mechanism by means of which modulation and demodulation occur have heretofore been totally unknown, although the results have always been readily describable mathematically.

7. A normal or time-forward wave is time-forward as seen by the external observer. The observer's forward flow of time is created by the rate of virtual photon scattering interactions within one kilogram of mass of his body/his instruments, as compared to the same rate in another external observer. Steady forward passage of time simply represents a steady rate of such internal virtual photon scattering action. Thus positive time flow and entropy are simply two sides of the same coin; the rate of formation of entropy is directly correlated with the rate of flow of positive time. Note that rate of flow of time is identically the rate of formation and dissolution of time, as carried in the virtual photons.

Negative time flow, to the external observer, is created by the rate of photon reordering actions (negentropy) within one kilogram of mass of the observer's body/his instruments. Steady time-reversal simply represents a steady rate of the reordering action. Thus negative time flow and negentropy are simply two sides of the same coin; the rate of formation of negentropy is directly correlated with the rate of flow of negative time.

Each mass can and does exist in a combination of the two time streams. Thus the actual time-flow rate of mass can seem to be slowed, as some additional negentropy and additional negative time are created by time-reversed photon interaction (antiphoton interaction) with mass.

The normal (time-forward) EM wave contains and carries positive energy and positive time; each of its photons is comprised of  $(+dE)(+dt)$ . On the other hand, a time-reversed EM wave contains and carries negative energy and negative time; each of its antiphotons is composed of  $(-dE)(-dt)$ .

8. It is accented that our graviton is highly dynamic. Hidden photons and EM waves flow through it laterally (spatial flow) and also vertically (harmonic and subharmonic flow via subharmonic oscillation). This flow or flux through the graviton is continually changing: "the" graviton is an average, or photon-coupled form in equilibrium. Since spacetime is constructed of such dynamic gravitons, this means that the frame concept is now fuzzy and statistical as well. One can now speak of the *stability of a frame*, the "*Q*" of a frame, "*spreading the Q*" of a frame so that its former fixed points become smeared in *n*-dimensions and only approximate, etc. *It is the geometry itself that is now smeared and averaged.*
9. Obviously we are referencing the concept of the graviton to the external observer, who sees things on a macroscopic scale that have in fact been highly integrated in the vacuum. He sees the averaged integral results of myriads of tiny, turbulent, macroscopic and submicroscopic changes. Thus the *spacetime* and the *frame* that he sees have submicroscopic hidden substructures. *Curvature* of spacetime actually refers to the change in potential (local hidden energy density) of spacetime. This density may increase or decrease, giving two types of curvature, one positive and one negative, with respect to local ambient spin-two vacuum. In addition, the local spacetime curvature always has a hidden electromagnetic structure, part of which may be deterministic and even deliberately constructed and engineered at will.

We should also certainly point out that Einstein's general theory of relativity is not necessarily the last word on gravitation and curvature of spacetime. For example, it is possible to formulate a contradiction-free theory of the gravitational field without even invoking the notion of curvature of spacetime at all. For example, see N.N. Razgovorov,

"Dynamic treatment of gravitation. The interaction equation and equations of the gravitational field," *Izvestiya Vysshikh Uchebnykh Zavedenii, Fizika*, 33(5), May 1990, p. 89-94 [in Russian]. An English translation is in *Soviet Physics Journal*, 33(5), November 1990, p. 458-462.]. Sachs, for example, has even produced a quaternion generalization of Einstein's tensor formulation of general relativity that may predict a fundamental and testable difference in gyroscopic precession. See Mendel Sachs, *General Relativity and Matter*, Reidel, Dordrecht, The Netherlands, 1982. See also Mendel Sachs, "The Precessional Frequency of a Gyroscope in the Quaternionic Formulation of General Relativity," *Foundations of Physics*, 19(1), 1989, p. 105-108.

10. For an excellent lay discussion of the missing chaos problem, see Robert Pool, "Quantum Chaos: Enigma Wrapped in a Mystery," *Science*, 243(4893), Feb. 17, 1989, p. 893-895. For a more technical discussion, see P.V. Elyutin, "The quantum chaos problem," *Sov. Phys. Usp.* 31(7), July 1988, p. 597-622.

11. For an introduction to Bohm's hidden variable theory, see D. Bohm, *Phys. Rev.* 85, 1952, p. 166,180; *Causality and Chance in Modern Physics*, Routledge & Kegan Paul, London, 1957; "Hidden variables and the implicate order," in *Quantum Implications: Essays in Honour of David Bohm*, Eds. B.J. Hiley and F. David Peat, Routledge & Kegan Paul, London & New York, 1987, p. 33. See also D. Bohm and B.J. Hiley, *Found. Phys.* 5, 1975, p. 93; *Found. Phys.* 12, 1982, p. 1001; *Found. Phys.* 14, 1984, p. 255. See also Y. Aharonov and D. Albert, "The issue of retrodiction in Bohm's theory," in *Quantum Implications: Essays in Honour of David Bohm*, *ibid.*, p. 223. For a discussion of what nonlocal theory may really entail in terms of *modular* variables, see Yakir Aharonov, "Non-local phenomena and the Aharonov-Bohm effect," *Quantum Concepts in Space and Time*, Eds. R. Penrose and C.J. Isham, Clarendon Press, Oxford, 1986, p. 41-64. For other important discussions see Lee Smolin, "Stochastic mechanics, hidden variables, and gravity," *ibid.*, p. 147-173; and Abner Shimony, "Events and processes in the quantum world," *ibid.*, p. 182-203. For a new viewpoint on emission processes, see Robert M. Wald, "Correlations and causality in quantum field theory," *ibid.*, p. 293-301; and Serge Haroche and Daniel Kleppner, "Cavity quantum electrodynamics," *Physics Today*, Jan. 1989, p. 24-30.

12. That is, photon-structured gravitons. Nonlinear gravitons were discovered by Newman (1975) and Penrose (1976). See E.T. Newman, in *General Relativity and Gravitation*, Eds. G. Shark and J. Rosen, Wiley, New York, 1975; R. Penrose, *Gen. Rel. Grav.* 7, 1976, p.31.

The reader should reflect for a moment: If general relativity (GR) already says that the gravitational potential is a conglomerate, then even orthodox GR implies that it has an *internal structure*. Since stress is the only way one can trap forces, and stress is inherently composed of bidirectional pairs of forces, it follows that the G-potential and the scalar EM potential — both of which *trap forces* — are both composed of *stresses*. Hence Whittaker's bidirectional EM force wave internal structure of the potential conceptually follows in straightforward fashion.

However, this constitutes a structuring of spacetime and of the *curvature* of spacetime. Reflect again for a moment: What are the unrestricted implications of geometrically curved spacetime? Simply that spacetime can be geometrically shaped, molded, twisted, and otherwise arranged into intricate — even dynamic — patterns. Since spacetime is much like a virtual gas (its flux is not of molecules but of virtual particles), it has a virtual stress (virtual *pressure*, so to speak).

It is also revealing to compare the situation of putterned spacetime curvature to the shapings of clouds in the atmosphere. Just as clouds are made of drops of water/ice suspended in an even finer flux of atmospheric gas molecules, just so the top level of virtual particle flux in vacuum/spacetime is "suspended" in an even finer level of virtual particle flux. Just as the water droplets constituting clouds can be formed into almost any shape or combination of shapes (patterns) to provide an infinite variety of cloud patterns, so can the top levels of the virtual particle flux of spacetime itself be formed into an infinite variety of forms or "orderings".

13. In two fundamental papers in 1903 and 1904, E.T. Whittaker wrote the basis for a complete scalar electromagnetics and an *engineerable and testable* unified field theory of electromagnetics and electrogravitation. See (1) E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355; (2) E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proceedings of the London Mathematical Society*, Series 2, Vol. 1, 1904, p. 367-372. In the first paper Whittaker described hidden bidirectional pairs of EM waves that comprise the scalar potential itself. Each of these bidirectional pairs in the Whittaker harmonic structure of potential (and hence of vacuum) is an internal EM wave/energy channel or *hidden photon channel through spacetime itself*. In the second paper, Whittaker showed that any present EM vector force field can be replaced by the two interfering scalar fields. In short, Whittaker showed that present electromagnetics can be converted to scalar fields and scalar interferometry, and will include even EM waves.

Some years ago, this present author realized the profound and absolutely fundamental significance of these two Whittaker papers, and formed a scalar electromagnetics theory from the implications of Whittaker's work. Unfortunately, Whittaker himself never realized that he had already written an engineerable unified field theory, for he never realized that his EM scalar potentials were also *gravitational* potentials. In the Western world, apparently no one else paid any particular attention to these two Whittaker papers and their profound import. Accordingly, they passed into obscurity. This author is convinced, however, that Soviet scientists reviewed these two papers after WWII, and founded a new and highly secret unified field theory, which they dubbed *energetics*, upon Whittaker's unnoticed work.

14. N.D. Devyatkov and M.B. Golant, "Prospects for the use of millimeter-range electromagnetic radiation as a highly informative instrument for studying specific processes in living organisms," *Sov. Tech. Phys. Lett.* 12(3), Mar. 1986, p. 118. See also N.D. Devyatkov, ed., *Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine* [in Russian], IRE Akad. Nauk. SSSR, Moscow, 1985. Devyatkov and Golant are at some pains to conceal that the "information content of the EM field" is actually the particular Whittaker-structure of the scalar potential.
15. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions*, [in Russian], Novosibirsk, 1981; and Vlail P. Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *PSI Research*, 1(1), Mar. 1982, p. 47-76. Although the latter journal is now defunct, the referenced article in it contains a considerable amount of the information printed in Kaznacheyev's referenced book.
16. For example, see V.K. Ignatovich, "The remarkable capabilities of recursive relations," *American Journal of Physics*, 57(10), Oct. 1989, p. 873-878. Particularly notice that Ignatovich points out a remarkable bidirectional wave structure inside the potential associated with the Schroedinger wave itself. However, he gives no credit to Whittaker's

1903 paper pointing out precisely that structure in *any* scalar potential, about two decades before the beginning of quantum mechanics. It also seems at least somewhat curious, if nothing else, that Ignatovich's paper closely follows this author's calling national attention (in national symposia and conferences) to the significance of the first and second Whittaker papers and of the structured potential. The form of Ignatovich's paper is almost as if the Soviets wish to see whether or not American physicists are yet aware of the significance of the Whittaker-structured potential to an *enumerable* unified field theory. In other words, this may be related to the Soviets' use of the structured potential in their microwave radiation of the U.S. Embassy in Moscow since the latter 1950s. There, the object was simple: Pick a high level target, the U.S. Ambassador to the Soviet Union. Electromagnetically induce some health problems and biological changes in U.S. Embassy personnel, using the internalized-EM Whittaker-structured scalar potentials — or, in short, *energetics*. These puzzling health changes will guarantee the personal attention of the NSA, CIA, State Department, U.S. President, etc. When no one can explain what's happening, they would turn to the U.S. scientific community for an explanation. If no scalar counteractions are made by the U.S. onsite at the U.S. Embassy in Moscow, then the Soviet planners would know that the U.S. was unaware of scalar electromagnetics as an engineerable unified field theory. In that case the Soviets would know with one hundred percent accuracy that the U.S. knew nothing of scalar EM (energetics), and hence had not developed scalar EM (energetics) weapons in secret, and also had no defenses against the secretly-developed Soviet scalar EM (energetics) weapons. For years, the U.S. answer/response — or *complete lack* of it — onsite at the Moscow Embassy reassured the Soviets that we were defenseless. If Ignatovich's paper is the same sort of probe, then by the lack of response to his *American Journal of Physics* article the Soviets may rest assured that the U.S. scientific community is basically still unaware of scalar electromagnetics/energetics as an engineerable unified field theory. However, slowly a very small part of academia is beginning to wake up to the potential — pun definitely intended! — of Whittaker's two papers.

17. T.E. Bearden, *The Excalibur Briefing*, 2nd Edition, Strawberry Hill Press, San Francisco, California, 1988, p. 194-198.

18. For details of mysterious, instantaneous deaths in Afghanistan, see Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," *Jane's Defence Weekly*, 1(13), Apr. 7, 1984, p. 508. For indications of a much "milder" EM disease induction weapon possibly used to kill top Radio Free Europe executives in Munich, see "Does Romania have a 'cancer' weapon?", in "Washington Whispers, Death by Radar," *U.S. News and World Report*, Dec. 12, 1988, p. 15.

19. For substantiation that Khrushchev reported the development of a fantastic new weapon, see Max Frankel, "Khrushchev Says Soviet Will Cut Forces a Third; Sees 'Fantastic Weapon,'" *New York Times*, Jan. 15, 1960, p. 1.

20. Christopher S. Wren, "Brezhnev Calls for Accord against 'Terrifying Arms'", *New York Times*, June 14, 1975, p. 1, 11; Malcolm W. Browne, "Senatorial Group Received by Brezhnev," *New York Times*, July 3, 1975, p. 2; Christopher S. Wren, "Moscow Now Pressing Disarmament," *New York Times*, Aug. 12, 1975, p. 6.

21. Draft agreement introduced by Andrei A. Gromyko to the United Nations' thirtieth session of the General Assembly on Sep. 23, 1975: *Prohibition of the Development and Manufacture of New Types of Weapons of Mass Annihilation and of New Systems of Such Weapons*. The first article provided that the types of these new weapons would be "...specified through negotiations on the subject."

22. To the Soviets, the microwave radiation of the U.S. Embassy in Moscow is a beautifully designed and very valuable intelligence collection **tool**: First, irradiate a high level U.S. target — the U.S. Ambassador to the Soviet Union. Use Whittaker-structured microwave potentials to induce a variety of health changes and diseases in Embassy personnel, including serious illnesses (and eventually deaths) of U.S. Ambassadors. This provides a strong stimulus and guarantees the direct attention of the CIA, DIA, NSA, NSC, DARPA, State Department, Department of Defense, and the President of the U.S. Puzzled, they will turn to highly competent U.S. scientific establishments to ascertain what exactly is going on. That is, the *best* knowledge of the U.S. system will be brought to bear on this puzzling problem. *By the subsequent U.S. reaction — or lack of it — on site at the Moscow Embassy, the Soviets can ascertain with 100 percent certainty whether or not the U.S. is aware of scalar electromagnetics.* If unaware, of course, then the U.S. has not developed scalar EM weapons of its own, or defenses against such weapons.
23. For more specific details, see T.E. Bearden, *AIDS: Biological Warfare*, Tesla Book Co., POB 1649, Greenville, TX 75401, 1988.
24. For example, in the 1960s and 70's French inventor Antoine Priore, working with some of the finest French medical scientists, positively proved that killer diseases such as cancer, leukemia, sleeping sickness, etc. can be cured electromagnetically. This was not anecdotal material, but rigorous scientific experiments properly performed and reported in the French medical journals. For a complete resume of the Priore Affair, see Jean-Michel Graille, *Le Dossier Priore*, De Noel, Paris, 1984 [in French]. For a substantial synopsis, see Christopher Bird, "Appendix I: The Case of Antoine Priore and his Therapeutic Machine: A Scandal in the Politics of Science," in T.E. Bearden, *AIDS: Biological Warfare*, *ibid.* p. 346-375. See also Priore references, *ibid.*, p. 333-339. For an excellent summary of the Priore Affair, with some details of the working of Priore's machine, particularly see David M. Rorvik, "Do the French have a cure for cancer?", *Esquire Magazine*, July 1975, p. 110-111, 142-149.
25. For an early discussion of the Woodpecker and some of the disagreement between analysts, see "Powerful Soviet radio signal protested," *Aviation Week & Space Technology*, Nov. 8, 1976. For an interesting report on the Woodpecker, see Robert Horitz, *The Woodpecker Project- A Preliminary Report*, Association of North American Radio Clubs, Jan. 8, 1987. Also, it is at least an interesting "coincidence" that the depletion of the ozone in a giant hole over Antarctica was only discovered in 1977 — after the powerful Soviet Woodpecker transmitters began operation in 1976.

Other leading scientists have at least speculated on potential EM biological warfare capabilities of the Woodpecker, though of course in the vein of conventional EM effects on biological systems. Cf "Soviet device uses radio waves as tranquilizer," Associated Press release, *Huntsville [Alabama] Times*, May 19, 1983. In this article, Dr. Ross Adey is quoted as having tested the Soviet Lida machine, which generates pulsed 40 megahertz radio waves and broadcasts them to affect biological systems. Adey described testing the machine on a cat, and in two or three minutes the cat was sitting quietly, almost as though transfixed, and uninterested in its surroundings. The animal remained uninterested in its surroundings, according to Adey, for some 20 to 30 minutes after the machine was turned off.

Dr. Robert Becker has particularly pointed out that the available evidence suggests that the Woodpecker is multipurpose, and could include an experimental attack directed against Americans. See Chapter 15: "Maxwell's Silver Hammer," of Robert O. Becker,



M.D. and Gary Selden, *The Body Electric: Electromagnetism and the Foundation of Life*, William Morrow & Co., New York, 1985, p. 271-329.

26. Since that announcement in *Science*, the weather over the United States has continued to be more anomalous than could possibly be attributed to chance excursion from norm. For a more orthodox concept of weather manipulation via ordinary EM means, see Bernard J. Eastlund, *Method and Apparatus for Altering a Region in the Earth's Atmosphere, Ionosphere, and/or Magnetosphere*, U.S. Patent no. 4,686,605, Aug. 11, 1987. Eastlund's process can be used to steer distant jet streams, to disrupt communications worldwide, and to destroy or deflect a missile attack. Significantly, the U.S. government requested Eastlund *not* to patent the weatherwar process. For other related orthodox references, see G. Meltz and F.W. Perkins, "Ionospheric Modification Theory," *Radio Science*, 9(11), Nov. 1974, p. 885-888; Carrol et al, "The Platteville High Power Facility," *ibid.*, p. 889-894; W.E. Gordon and H.C. Carlson, Jr., "Arecibo Heating Experiments," *ibid.*, p. 1041-1047; Meltz et al., "Ionospheric Heating by Powerful Radio Waves," *ibid.*, p. 1049-1063. Since microwave heating is of interest in the Eastlund phenomenon, related references on electron cyclotron resonance heating are of interest Cf Batchelor and Goldfinger, "A theoretical study of electron-cyclotron absorption in Elmo bumpy torus," *Nuclear Fusion*, 20(4), 1980, p. 403-418 and Kosmahl et al, "Plasma acceleration with microwaves near cyclotron resonance," *Journal of Applied Physics*, 38(12), Nov. 1967, p. 4576-4582. See also "The MST Radar at Poker Flat, Alaska," *Radio Science*, 15(2), Mar.-Apr. 1980, p. 212-223. Interestingly, Eastlund's patent cites a reference to Nikola Tesla in *Liberty Magazine*, Feb. 1935, p. 7. Finally, for a Soviet orthodox paper on the possibility of using intense microwave radiation to influence the weather and cause precipitation from clouds, see E.T. Protasevich, "Microwave weather modification," *Soviet Technical Physics Letters*, 7(3), Mar. 1981, p. 114-115.

27. For illustrations of the Woodpecker intersection grid over the U.S., see Christopher Chant and Ian Hogg, *Nuclear War in the 1980's?*, Harper & Row, New York, 1983, p. 71; *Soviet Military Power*, U.S. Department of Defense, 1985, p. 45.

28. Bearden, *Soviet Weather Engineering Over North America*, 1-hr, videotape, 1985; "USSR: New Beam Energy Possible?," *Defense & Foreign Affairs Daily*, 13(111), June 12, 1984, p. 1-2. Ironically, results of this Soviet engineering of the weather over the U.S. is being accomplished nearly continuously at present. The results of the artificially created highs and lows — and their movement across the U.S. — has now been detected by our atmospheric scientists, particularly at the University of Illinois in Urbana-Champaign. Beginning on Jan. 5, 1990, the "strange weather phenomenon" was detected as a large-scale pressure wave, enormous in size and extent, traveling at about 50 miles per hour. On Jan. 14, a similar detection of the effect was made, and again in March. On Dec. 21, 1990, again the large-scale pressure wave was detected. In the past, solitary pressure waves have been detected in the atmosphere, but always small and only as a local effect. These observations are the first detections of large solitary pressure waves, 80-100 kilometers in wavelength, six kilometers high, and extending north-south across two states. The two Jan. 1990 waves lasted 11 and 16 hours respectively. Already the researchers are accepting the phenomenon as natural, and excitingly stating that it can be used to "predict the weather ahead of the traveling giant wave. *One would certainly hope so, since the giant wave is a Russian scalar wave interferometry creation in the first place, designed to direct and influence the weather over the U.S.I* However, now we are going to see our atmospheric scientists accepting these heretofore unheard-of phenomena as absolutely natural! As this author stated once before, U.S. our scientists do not recognize Soviet weather engineering when it's right over their heads in plain view, because they know nothing of scalar EM waves and scalar interferometry. For a reference to the

detection of these giant, moving pressure waves, see "Strange Pressure Waves Crossed Midwest in 1990," *Watt Street Journal*, Jan. 15, 1991.

29. Bearden, *Fer-de-Lance: A Briefing on Soviet Scalar Electromagnetic Weapons*, Tesla Book Co., POB 1649, Greenville, TX 75401, 1986; *AIDS: Biological Warfare*, Tesla Book Co., 1988; *Solutions to Tesla's Secrets and the Soviet Tesla Weapons*, Tesla Book Co., 1981; "Soviet Psychotronic Weapons," 1978; *The Excalibur Briefing*, Strawberry Hill Press, San Francisco, 1980; "Star Wars Now: The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization," Tesla Book Co., 1984; Tesla's Electromagnetics and Its Soviet Weaponization," *Proceedings of the Tesla Centennial Symposium*, IEEE and International Tesla Society, Colorado College, Colorado Springs, Colorado, 1984; and others such as *Analysis of Scalar Electromagnetics*, Tesla Book Co., 1990 and "Soviet Phase Conjugate Weapons: Weapons That Use Time-Reversed Electromagnetic Waves," *Bulletin*, Committee to Restore the Constitution, POB 986, Fort Collins, Colorado 80522, Jan. 1988.
30. T.E. Bearden, *AIDS: Biological Warfare*, 1988, p. 226.
31. T.E. Bearden, *Fer-de-Lance*, 1986, p. 220-223.
32. Paul Brodeur, *The Zapping of America: Microwaves, Their Deadly Risks, and the Cover-Up*, W.W. Norton & Co., New York, 1977, p. 39-40, 60-61, 95-134.
33. A.M. Lilienfeld et al, *Foreign Service Health Status Study: Evaluation of Health Status of Foreign Service and Other Employees From Selected Eastern European Posts*, Department of Epidemiology, of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland, Final Report, July 31, 1978. Dr Lilienfeld, professor of epidemiology, also directed a study in the early 1960s which pointed out a possible connection between Down's syndrome in children and exposure of their parents to radar. [See Arnold T. Sigler, Abraham M. Lilienfeld, Bernice H. Cohen, Jeanette E. Westlake, "Radiation Exposure in Parents of Children with Mongolism (Down's Syndrome)," *Bulletin of the Johns Hopkins Hospital*, Vol. 117, 1965, p. 374-399.] He also directed another study which found a significant increase of chromosome abnormalities in the blood of persons who had formerly been radar workers. Dr Lilienfeld obviously was a highly qualified and excellent choice to direct a study of the U.S. Embassy personnel health problems vis a vis the Soviet microwave radiation of the U.S. Embassy. That U.S. biophysics knew nothing of infolded Devyatkov structures of Whittaker potentials and human vulnerability to such EM biological warfare is most certainly not the fault of Dr. Lilienfeld. See also Robert C. Mallalieu, *A Model of the Microwave Intensity Distribution Within the U.S. Embassy, Moscow 1966-1977*, Report FS-80-166, Applied Physics Laboratory, Johns Hopkins University, Baltimore, Maryland, Aug. 1980. Dr. Mallalieu is a very capable scientist and, just as for Dr. Lilienfeld, it is most certainly not his fault that the U.S. biophysics community had no knowledge of the Soviet method of inducing cellular diseases and changes by means of infolded hidden bidirectional EM wave structures of Whittaker potentials. All of the very able Johns Hopkins scientists in fact did a highly capable job *with the tools they had available to bring to bear on the problem*. It was simply their *tools and theoretical models* that were inadequate and failed them.
34. *Microwave Radiation at the U.S. Embassy in Moscow and Its Biological Implications: An Assessment*, U.S. Department of Commerce, Doc. #NTIA-SP-81-12, Mar. 1981.
35. See also Martin Ebon, *Psychic Warfare: Threat or Illusion*, McGraw Hill, New York, 1983, passim. See also Captain John D. LaMothe, *Controlled Offensive Behavior — USSR*, Report ST-CS-01-169-72, Defense Intelligence Agency, Washington, D.C. (Released

under FOIA). See also Captain John D. LaMothe and Mr. Louis Maire, *Soviet and Czechoslovakian Parapsychology Research*, Report DST-1810S-387-75, Defense Intelligence Agency, Washington, D.C. (Released under FOIA). See also Barton Reppert, Associated Press release, "Microwaves in Moscow remain mystery for U.S.," *Huntsville [Alabama] Times*, May 22, 1988, p. 1B, 4B.

36. Cf Bearden, *Fer-de-Lance*, 1986; *AIDS: Biological Warfare*, 1988; "Soviet Phase Conjugate Weapons: Weapons that use Time-Reversed Electromagnetic Waves," *CRC Bulletin*, Jan. 1988.
37. See "Secret Speech: Did Brezhnev Come Clean?", *National Review*, 29(8), Mar. 4, 1977, p. 248,250.
38. William Beecher, "Brezhnev termed detente a ruse, 1973 report said," *Boston Globe*, Feb. 11, 1975, p. 1, 12.
39. E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355. A copy of this paper is included as Annex B of this book.
40. E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proc. Lond Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372. A copy of this paper is included as Annex C of this book.
41. N.D. Devyatkov and M.B. Golant, "Prospects for the use of millimeter-range electromagnetic radiation as a highly informative instrument for studying specific processes in living organisms," *Soviet Technical Physics Letters*, 12(3), Mar. 1986, p. 118.
42. N.D. Devyatkov, Ed., *Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine* [in Russian], IRE Akad. Nauk. SSSR, Moscow, 1985.
43. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions* [in Russian], Novosibirsk, 1981.
44. Vlail P. Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," Novosibirsk, 1981 [in Russian]. English translation in *Psi Research*, 1(1), Mar. 1982, p. 47-76; V.P. Kaznacheyev et al, "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, 1(3), Mar. 1976; Vlail P. Kaznacheyev et al, "Apparent information transfer between two groups of cells," *Psychoenergetic Systems*, 1(1), Dec. 1974; V.P. Kaznacheyev, "Information Function of Ultraweak Light Flows in Biological Systems," in *Problems in Biophysics*, Novosibirsk, 1967, p. 7-18 [in Russian].
45. For a detailed exposition of time reversal in physics, see Robert G. Sachs, *The Physics of Time Reversal*, University of Chicago Press, Chicago, 1987.
46. As early as 1898 Carl Barus — in a paper titled "A curious inversion in the wave mechanism of the electromagnetic theory of light," *American Journal of Science* 5 (Fourth Series), May 1898, p. 343-348 — showed an interpretation of Maxwell's electromagnetic wave equations that could *make the wave run backward*. His paper was ignored, but it may have been the first indication of what today in nonlinear phase conjugate optics is known as the *time-reversed EM wave*. Some appropriate references on phase conjugate/time-reversed EM waves are: (1) Amnon Yariv, "Chapter 16: Phase Conjugate Optics — Theory and Applications," *Optical Electronics*, 3rd Edn., Holt, Rinehart and Winston, New York, 1985; (2) Robert A. Fisher, Ed., *Optical Phase*

*Conjugation*, Academic Press, New York, 1983; (3) U. Yu Zel'dovich et al, *Principles of Phase conjugation*, Vol. 42, Springer Series in **Optical** Sciences, Theodor Tamir, Ed., Springer-Verlag, New York, 1985; (4) David M. Pepper, "Nonlinear Optical Phase Conjugation," *Optical Engineering*, 21(2) Mar./Apr. 1982, p. 156-183; (5) David M. Pepper, "Applications of Optical Phase Conjugation," *Scientific American*, 254(1), Jan. 1986, p. 75; and (6) F.V. Bunkin et al, "On sound phase conjugation with amplification of phase-conjugated wave," *Soviet Journal of Quantum Electronics*, Vol. 11, 1980, p. 687.

47. Fritz Albert Popp, "Photon Storage in Biological Systems," in Fritz Albert Popp et al, Eds., *Electromagnetic Bio-Information: Proceedings of the Symposium, Marburg, September 5, 1977*, Urban & Schwarzenberg, Baltimore, 1979, p. 123-149. This very important paper presents Popp's discovery of the body's master cellular communication system. Ruth has experimentally confirmed the existence of the *degradation radiation (death photons)* of Kaznacheyev. Experimental results of Ruth and others have led Popp to postulate that biological systems generally have the capacity to store coherent photons which come from the external world, and that ultraweak photon emission from biological systems is governed by photon storage (i.e., *charge up of coherent internal structuring of the electrical charge or potential*) within the cell population. [Note that the present author's dynamic *statistical graviton as photon/antiphoton coupling* concept, in conjunction with Whittaker-structured potentials on atomic nuclei, gives the precise mechanism by means of which Popp's coherent virtual photons are stored as components of gravitons in Whittaker potentials.]. See also Fritz Albert Popp, *Biophotonen. Ein neuer weg zur Losung des Krebsproblems*, Verlag für Medizin, Heidelberg, 1976 [in German].
  
48. For a much earlier and very useful work on mitogenetic radiation, see Otto Rahn, *Invisible Radiation of Organisms*, Verlag von Gebruder Borntraeger, Berlin, 1936. Rahn points out that dividing cells — and dying cells — emit a primary biological energy in the ultraviolet light range around 2600 angstroms. This *mitogenetic radiation (MR)* can be transmitted through quartz to cause conspicuous stimulation of mitosis in isolated cell colonies. The book includes methods of observing biological radiations, special characteristics of the radiation, analysis of the mitogenetic effect, etc. An earlier book on this subject, with a fairly complete bibliography up to 1932, is W. Stempell, *Die Unsichtbare Strahlund der Lebewesen*, Jena, Gustav Fischer, 1932 [in German]. Note that this German work preceded the Soviet work of Kaznacheyev after WWII, including the EM transmission of cellular effects through quartz windows.
  
49. T.E. Bearden, "Maxwell's Lost Unified field Theory of Electromagnetics and Gravitation," *Proceedings*, PACE Third International New Energy Technology Symposium, June 25-28, 1988 at Maison du Citoyen, Hull (Ottawa), Canada, 1988.
  
50. T.E. Bearden, "Maxwell's Original Quaternion Theory Was a Unified Field Theory of Electromagnetics and Gravitation," *Proceedings*, PACE Third International New Energy Technology Symposium, June 25-28, 1988 at Maison du Citoyen, Hull (Ottawa), Canada, 1988.
  
51. For a cogent argument about what might have been discovered much earlier in physics if quaternions had not been cast aside, see James D. Edmonds, Jr., "Quaternion Quantum Theory: New Physics or Number Mysticism?", *American Journal of Physics*, 42(3), Mar. 1974, pi 220-223. Just how much more powerful was Maxwell's quaternionic expression of EM theory than was Heaviside's (i.e., the modern) vector interpretation, was succinctly expressed by Josephs as follows: "*Hamilton's algebra of quaternions, unlike Heaviside's algebra of vectors, is not a mere abbreviated mode of expressing Cartesian analysis, but is an independent branch of mathematics with its own rules of operation and its own special*

*theorems. A quaternion, is, in fact, a generalized or hypercomplex number...*" (H.J. Josephs, The Heaviside papers found at Paignton in 1957," *Electromagnetic Theory by Oliver Heaviside, Including an account of Heaviside's unpublished notes for a fourth volume, and with a foreword by Sir Edmund Whittaker*, Vol. III, Third Edition, Chekea Publishing Co., New York, 1971, p. 660.

52. For example, one difference between vectors and quaternions is of particular interest. In multiplication, when the multiplied vector components of two quaternions produce a zero vectorial resultant, the product of the quaternions may still produce a nonzero scalar resultant. Further, this scalar resultant has a *hidden variable* internal structure of infolded functions of the component vectors that have vectorially "zeroed" or "cancelled." When the interacting zero-summed vector components of the quaternions are EM force vectors, the nonzero scalar component of the quaternion resultant — with its deterministic, infolded, zero-summed (and so *oppositively paired*) vectors represents a *trapped EM stress of spacetime*, and hence it is a *deterministically EM-substructured scalar potential*. Further, this scalar potential's deterministic, infolded EM vector structure is vector zeroed, hence constitutes a force-free field, *with its presence and its infolded EM structure completely hidden from normal "electron translating" detectors*. This structured quaternionic force-free potential represents a *patterned change in the local stress energy density of vacuum*. If the infolded vectors are functions of time, then each infolded component of the structured potential is time-varying. One can even produce standing waves of, and deterministically structured dynamic patterns in, the locally trapped energy density of vacuum. *These changes/waves in the local vacuum stress energy density represent very strong, engineerable, electrogravitational changes/waves in the local rate of flow of time, and in the local curvature of spacetime/vacuum itself*. This directly extends present Einsteinian general relativity, making it an empirical engineering science, and adding in the missing electromagnetics as well. In short, Maxwell's original quaternion theory was already a unified field theory of gravitation and electromagnetics — it was a testable and engineerable theory of *electrogravitation*.

Oliver Heaviside abhorred the quaternion, since it linked together a scalar component and a vector component, or "*apples and oranges*," in his view. When he excised the scalar component of the quaternion to produce his vector mathematics for translations of Maxwell's theory, Heaviside threw away *electrogravitation*.

As is well-known, Maxwell prepared his EM model based on his mechanical model of the etheric medium. Also, Maxwell himself was well aware of the importance of EM stress in the medium, although he had apparently not realized that this represented gravitational "charge" or *gravitational potential*. He knew that vectors alone could not express EM stress effects, but quaternions captured them. For example, quoting from Maxwell's *A Treatise on Electricity and Magnetism*, Vol. 1, 3rd Edition, New York, 1954: "*There are physical quantities of another kind which are related to directions in space, but which are not vectors. Stresses and strains in solid bodies are examples, and so are some of the properties of bodies considered in the theory of elasticity and in the theory of double refraction. Quantities of this class require for their definition nine numerical specifications. They are expressed in the language of quaternions by linear and vector functions of a vector.*" Unfortunately the internal structure of atoms was not known at the time, so Maxwell had no way of arriving at the activation charging of atomic nuclei by EM stress. Note that Maxwell's book was first published in 1873.

See also R. Chen, "Cancellation of internal forces," *American Journal of Physics*, 49(4), Apr. 1981, p. 372 for a discussion of summation vectors and *internal* vectors. Internal forces occur in equal and opposite pairs (i.e., as stresses), so they contribute nothing to the vector sum (i.e., to external translation). Note, however, that just this sort of stress in

the medium or in the system is what was captured by the non-disappearing scalar component of the resultant in quaternion multiplication, even when the *vector translation* component of the interaction resulted in a zero transition (vector) resultant.

The scalar component of Maxwell's quaternions captured and retained the *internal vectors* that result from zero-vector summations of non-zero EM force fields. *Oliver Heaviside (and to a lesser extent, Williard Gibbs) discarded the entire internal EM vector region when he excised the scalar component of the quaternion. The internal EM vector region is the electrogravitational region, and that is what was discarded — all those parts of Maxwell's theory where EM forces turn to gravitational potential. Accordingly, Heaviside only captured a subset of Maxwell's unified EM/G field theory; he captured only that small subset where gravitation and electromagnetism are mutually exclusive.*

In the vacuum, this internal or infolded EM stress energy constitutes *a change of the local gravitational potential, hence a curvature of the local spacetime*. Further, a *deterministic structure* of these equal and opposite pairs of internal EM forces can be and is infolded within the potential, and hence "hidden" within a structured change to the local vacuum/spacetime.

Ironically, Maxwell in 1873 had already written a theory that embodied David Bohm's hidden variables, which Bohm would produce three quarters of a century later. In addition, Maxwell had already falsified the general relativity theory that Einstein was to produce four decades later, for Maxwell's infolding of EM forces into a gravitational potential had already curved — *and deterministically structured* — local spacetime. Not knowing that EM forces can be internalized and trapped, and used to curve spacetime, Einstein considered only the extremely weak gravitational force as an agent of spacetime curvature. But the G-force is so very weak (say,  $10^{-42}$  or so as strong as the EM force) that only a huge collection of mass — such as the sun or a star — would exert G-forces powerful enough to curve spacetime sufficiently to be detected. Since the observer, his laboratory, and his instruments would never be on the surface of the sun or of a star, Einstein reasoned that — where the observer was — local spacetime would essentially be flat and never curved. Accordingly, he made a most erroneous postulate in his general relativity theory: he postulated that the local spacetime would be flat, and uncurved. The error is that he stated the postulate incorrectly. *Rigorously, he should have postulated that the local spacetime would not be curved whenever only the weak gravitational force was used as the agent for curvature, for that is the correct statement of the postulate and what it assumed.* Accordingly, Einstein did not at all write a complete theory of curved spacetimes. Instead, he wrote a very special case. His postulate of the locally flat spacetime contains unwitting, hidden assumptions that (1) electromagnetism is always mutually exclusive from gravitation, (2) only the weak gravitational force is used as an agent to cause spacetime curvature, and (3) electromagnetic field in free space (actually, in spacetime) always moves at the speed of light and is never *locally trapped*.

Einstein then spent the rest of his life in a fruitless search to try to find how to recover the electromagnetics which his general relativity theory excluded. Ironically, he never realized — as did none of the relativists — that his own postulate of a flat local spacetime prevented any unification of EM and G, because it inadvertently had already declared them mutually exclusive.

53. Bearden, "Maxwell's Lost Unified Field Theory...", 1988.
54. Bearden, "Maxwell's Original Quaternion Theory...", 1988.

55. See note 52. There are actually two kinds of EM energy: (1) *externalized* EM energy, or EM energy in translation, and (2) *internalized* EM energy, or EM energy trapped with a medium and not externally translating. Note that the trapped internal EM energy is quite dynamic, and continually acting on the local medium. Note also another marvelous thing which orthodox physics has completely missed: *Trapped internal EM energy is essentially perpetual; it may be regarded as continually doing internal "work" on the medium, but since it is not translatable externally, it cannot dissipate.* This is because "trapped" means that the energy is in its own "closed system"; therefore the energy of that closed self-system is conserved (perpetual) until something breaks (opens) up the closed self-system. It is energy that is actually completely dynamic, but localized. This is a new and more rigorous interpretation of *potential energy*: Potential energy is simply localized energy that is not translating externally, hence is never dissipated as *external* work. It is continually and completely doing *internal* work.

What we are saying is that the very concept of energy is simply that of continual expenditure of work completely locally and internally — on and in the medium — without external translation *through* the medium. *That can be taken as the definition of a medium: an entity or regime where this holds.* Hence the difference between energy and work is simply only *external translation*. That is, with zero external translation, there is zero external scattering because no distance is involved — and work has been equated to the external scattering of EM energy in multiple directions over specific distances. We accent the latter statement: the present concept of physical work a priori assumes simultaneous external translation of EM energy (trapped work) into multiple directions at once — i.e., it assumes *scattering*.

The situation is clarified if we realize that we can consider any particular thing as simply a collection of even finer things. Applying this principle, the energy of one object becomes the local collection of the energies of many finer objects. The energy of one finite region of spacetime becomes a collection of the energies of even finer regions of spacetime, where these finer regions are all part of the larger collective region. When energy does not externally translate, it does not matter whether or not it is thought of as "energy" in the rather mystical orthodox sense of "the capacity to do external work", or if it is thought of as "continually occurring internal work without external translation" — which latter, of course, just simply means without doing *external* work.

The result of all that laborious reasoning is this: energy may be regarded as internalized work. Work may be regarded as externalized and scattered energy. Presently, internalized work is sometimes referred to as *virtual* work. I.e., work is being done, but not in external translation.

One additional factor must be noted: Since the energy of an object is actually a localized collection of the energies of many smaller subthings of the object, then those subthings may be externally translated in two fashions: (1) they can be translated in multiple directions, out of the region, in which case their energies now are not integrated. In other words, the "energies" of the subobjects now react individually with the observer/detector/instrument. We may say that the "energy of the original region" — which was an integral of all the subenergies — has now been *disintegrated*. In physics, the notion of this disintegration of internalized energy by external scattering is known as *the production of heat*. The concept of heat applies to the degree of external scattering and hence disintegration of internalized energy. Things which can be lined up and integrated are things that are *ordered*. Thus the scattering of internalized energy (the scattering of *order*) is *disordering* of energy.

Note also that we are now somewhat in violation of the present interpretation of thermodynamics, as regards the notion of *temperature*. We state unequivocally that any instrument only measures or detects its own internal change, nothing else. No instrument actually measures the "temperature" of an object or region; instead, at least a little bit of energy from that region must be externally translated from the region and into the instrument, to cause an internal change (internal work) in the instrument. But in that case *we did not actually measure the temperature content of the object or region*. We actually detected the *escape and disordering* of some of that temperature content and "measured" the characteristics of the externalized escape. In ascribing a temperature to the object, we are actually making a statement about *the rate at which that object's trapped internal EM energy can externally translate and escape and be scattered, given the chance to do so*. Rigorously, this is in accord with the quantum mechanical view. An object has no such thing as a temperature, until we *measure* or *detect* or *observe* the temperature. Even then, we do not measure or detect or observe the temperature, but only a certain change in it.

Now there are actually three kinds of external translation of energy that can be made — thermodynamics only accounts for two.

First, we can have external scattering translation, which equates to the orthodox concept of external work. In that case, the internal energy/work is "being expended as external work." Note that the work is always being done in a different region from where the energy is, conceptually, when we state that "energy is being expended as work."

Note now that the externalizing translation requires movement through an external distance, hence through time. Since in the macroscopic world EM energy normally scatters off atoms by its interaction with their electron shells, then in the macroscopic world EM energy is continually and continuously being expended as work. That is, order (integrated internal energy) is continually being expended as disorder (external disintegration of the previously internally integrated energy). This process — of continual production of disorder by external EM scattering — is known as *entropy*. The external scattering/disordering actually involved "translation through time." Now, actually, in physics the universe is composed of angular momentum — which has the units of energy multiplied by time. Further, the observable universe can only change in incremental units of action, called quanta. One quantum consists of a little piece of energy welded to a little piece of time, so to speak, with no seam in the middle. Hence for energy to "translate", quantum change must occur, and in this case we must think of the external scattering and disintegration of internalized energy as actually being the external scattering of internalized collections of quanta. But in that case, the internal collected quanta contained internally collected time amounts as well as energy amounts. Hence in the entropic macroscopic world we are continuously scattering not only EM energy but EM time. What we call the "rate of flow of time" consists of nothing but the external translation/scattering of action, hence the external translation/scattering of energy and the external translation/scattering of time. *The normal "flow of time" is actually the external disintegration/scattering of internalized integrated/boundary-coherent time. In other words, the production of entropy and the production of the "forward flow of time" are actually one and the same thing. Further, the "rate of flow of time" is simply the "rate of production of entropy." If we change the rate of production of entropy, we change the rate of flow of time, and vice-versa.*

The second form of external translation of internalized energy is to translate all the subenergies in parallel, coherently. Thus if we translate the internal mass (which is just internalized or trapped energy) of an object through space and time coherently, we



"translate the object" through space and time. In this case no entropy is produced (conceptually speaking), and the object does not "age-change" as such. Everything in the object is just as it was. *If an object did this and only this, it also would not "move in time" a priori, as far as it itself was concerned*, for it would experience no entropy and no internalized change of action, hence no internal change in time. Interestingly, it would also be completely unobservable by any other "physical observer" or "physical observing/detecting/measuring instrument." It is interesting, but well beyond the scope of this paper, that objects can actually be induced to move in a fashion very close to this second translation, and this has been experimentally verified. We will not discuss the second case further, except to say that our very notion of something "moving through space" captures this aspect. The fact that normally objects still exchange and scatter energy and time externally, even when "moving through space", means that we still see them as moving through normal time (through *scattering time*.) Rigorously, objects which move through normal space and time are objects which (1) keep much of their internalized energy unscattered, so that they move through space, and (2) scatter some part of their internalized energy, so that they move through scatter-time or normal-time.

The third form of external translation/scattering of internalized energy is marvelous indeed: *It is negative*. In this case, scattered external energy is actually focused back into the internal, ordered, integrated energy of the object. But since this actually involves action, or "energy x time," then the object does not scatter/disintegrate time, but rather it coherently collects/integrates time. To the object, this is a time-reversed situation. Rigorously, the object exists in integrating time, not disintegrating time. *The object is time-reversed*. Note that the second law of thermodynamics — which we have just violated — *assumes* that time flow is always positive; i.e., that internalized EM energy/time are always being externally scattered/disintegrated. Rigorously, the second law of thermodynamics — the law of entropy — only applies to the forward flow of time. It specifically does not apply to the time-reversed situation, for obviously that would be re-ordering and negentropic. *Entropy is only one side of a two-sided coin; negentropy is the other side*.

Re-ordering of EM energy is occurring, and that is the concept of *negentropy*. This EM energy that re-orders is *phase-conjugated*, i.e., *time-reversed*. It is referred to as *negative energy*. We point out that this is a perfectly permissible form of energy translation, and it can be quite readily engineered on the laboratory bench, and even amplified. Most physicists presently are very uncomfortable with the time-reversed EM wave, even though it is a proven fact. They desperately try to ignore the negentropic implications, for that means the violation of the second law of thermodynamics, which they strenuously try to hold sacrosanct. And the fact that one can easily amplify the negentropy *directly from entropy*, merely by pumping a phase conjugate mirror, also is most studiously avoided *because of total, utter fear of the awful implications of that experimental fact*.

56. Bearden, "Maxwell's Original Quaternion Theory...", 1988, p. 8.

57. Again refer to Maxwell's quote in note 52 above. If the vectors are waves, their amplitudes are functions of time. It is easily seen that the infolded functions of these vectors waves, in a vector-zero resultant summation of opposing vectors, can and will also be waves. Since the vector translation resultant is always zero, then the overall magnitude of the standing scalar potential wave may change, or not change, according to the specific internal EM waves and their relationships. In any case, the potential wave — which in the limiting case may be just a so-called "fixed change" in the scalar potential — will be a composite of its internal, dynamic, EM waves which individually are translating. The external potential, being a composite formed of relationships, is similar to a phase wave, hence can "move or translate through space" at any velocity, simply depending

upon its internal arrangement. Note that scalar EM waves are very complex in structure, and cannot normally be described by single overall characterizations such as "frequency," "wavelength," etc. Those are *string* wave concepts, and scalar waves are almost always radically different from string waves.

58. Originally I chose the term *scalar electromagnetics* for my unified field theory work, since I based it on Whittaker's fundamental 1903 and 1904 papers. In his 1904 paper, Whittaker had already shown that all of classical EM could be replaced by an electromagnetics based on *scalar potentials* and *scalar potential interferometry*.

Whitney has pointed out that a slight correction to Whittaker's 1904 paper is required, since Whittaker assumed the standard Lienard-Wiechert (LW) mode for the EM potentials created by rapidly moving point sources. The LW model was derived at the turn of the century, before the full development of special relativity theory. The LW model is faulty because it fails to conserve total charge. See Cynthia Kolb Whitney, "On the Lienard-Wiechert Potentials," [unpublished]; "Generalized functions in relativistic potential theory," *Hadronic Journal*, Vol. 10, 1987, p. 289-290; and "A new perspective on the hydrogen atom," *Physics Essays*, 1(2), July 1988, p. 52-55. Whitney also shows that most modern derivation methods for the relativistic EM potentials have been "retrofitted" to the Lienard-Wiechert results in most present-day texts. She has found — and corrected — the error that has been passed along by almost all other theorists. A significant change in the orientation of the longitudinal E-field occurs in the altered and corrected formulation of the potentials. This field directionality becomes significant in any multi-body system, since the new direction provides a torque on the accelerated system as a whole, producing an energy transfer that works in opposition to radiation and moves energy from fields and to particle orbits.

The Lienard-Wiechert error inherent in Whittaker's paper is not fatal, however, and merely implies that one may need to utilize some four or so potentials — instead of just two — to fully replace classical EM by scalar potential interferometry when torquing and multi-body systems are considered.

59. Again, quaternionic or Whittaker infolding of functions of EM force vectors inside a scalar EM potential produces a scalar field with a hidden internal structure that can be deterministic. If the infolded vectors are rhythmic (waves), the scalar potential will have pairs of bidirectional waves multiplied together, infolded as a Whittaker structure.
60. The Soviets obtained the German radar team at the end of WWII. That team had developed radar absorbent materials (RAM), and had also noticed anomalies in their RAM materials when testing them for simultaneous illumination by multiple radar beams. This actually produced the first four-wave mixing phenomena, the first time-reversed EM wave, and the first pumped phase conjugate mirror material — in *radar*, not in optics.

After WWII, the Soviets also had embarked on a desperate crash effort to try to catch the West, develop nuclear weapons, and develop ballistic missiles and anti-bomber missile defenses.

With the Western development of the atomic bomb, Stalin had been frustrated in his plans to wait two years, keep his armies intact, and let the West beat its swords back into plowshares. He had planned to then march into Europe and take it in six weeks — and he could have done so, except for the advent of the atomic bomb. Now the West could bomb him back to the stone age if he massed his armies and tried to move into Europe.

However, Stalin also knew that the atomic bomb would not be the last great scientific and technical breakthrough. Stalin was also an iron dictator who brooked no opposition; he killed his enemies. He marshalled his scientists to actively — even frenziedly — search for the next such decisive technical breakthrough area. They were to leave no stone unturned until they found such an area. Stalin would follow the same scenario demonstrated by the West against the Japanese. When the new breakthrough area was found, the entire resources of the Soviet state would be marshalled behind it, to develop it in great secrecy. At the eleventh hour, they would then thrust it upon the West by surprise. The West, utterly confused and helpless, would be forced to surrender to Stalin's aims. This was Stalin's plan.

Under that plan, the Soviets purchased all the scientific journals and literature of the West back to the beginning. They transported shiploads of this scientific and technical material back to Russia, and set up large institutes to examine every paper. In one such institute, some 2,000 PhDs — together with a complete translation staff—was assembled to meticulously review this scientific literature. Anything unusual or interesting was put aside for further, more exhaustive review. In this way the Soviets discovered such long-ignored scientific gems as the two Whittaker papers of 1903 and 1904. They discovered negative energy, negentropy, the time-reversed wave, and pumped phase conjugate mirrors — all in radar experiments, which were then reproduced in optical experiments because of the reduced size and increased accuracy. The very best scientists available were utilized.

The Soviets have always been the best nonlinear scientists in the world, and they succeeded magnificently in this effort. They broke through to a new, *engineerable* unified field theory, dubbing it *energetics*. And the entire effort was done in greatest secrecy, under the complete and total control of the early version of what is today the Soviet KGB.

By 1950, research in the new field was beginning, and at top speed — but all in completely secret laboratories, under the tightest security, and under the complete control of the KGB. And the program is still under their complete control — for research and development, deployment, and employment of the new superweapons. By the mid-SOs, prototype weapons — some of very large magnitude — were undergoing serious testing.

In the winter of 1957-58, for example, an accidental failure in a huge Soviet Whittaker-wave experimental transmitter in the Southern Urals (near Kyshtym) resulted in the discharge of a very large electrogravitational (EG) potential into the earth. This EG pulse struck the nearby stored nuclear wastes, sharply increasing the nuclear potential on the radioactive nuclei. Since this caused the radioactive nuclei to immediately fission, producing a nuclear explosion *in the dirt and dirty*. The resulting radioactive fallout contaminated a large area — over 1,000 square miles in extent — and it is still deadly radioactive to this day. [For an orthodox presentation of the Kyshtym explosion, see Zhores A. Medvedev, *Nuclear Disaster in the Urals*, Translated by George Saunders, W.W. Norton & Co., 1979.]

61. In January 1960, Nikita Khrushchev announced to the Soviet Presidium the forthcoming advent of fantastic weapons. He stated that these new superweapons in advanced development were so powerful that, if unrestrainedly used, they could wipe out all life on earth.

In May 1960 Francis Gary Powers' high-flying U-2 spy plane was mysteriously disabled on a spy mission over the Soviet Union. Some difficulties with the autopilot were first experienced. Then a dull thump was felt by Powers, and a tremendous orange flash lit the cockpit and sky. *The flash persisted, however, showing that it was not a normal explosion at all, but a persistent and sustained EM fireball.* The U-2 was disabled and Powers bailed out, to be captured by the Soviets. When Eisenhower publicly lied about the U-2 mission, calling it a "weather plane," an angry Khrushchev cancelled the forthcoming summit meeting with the American President, then exhibited the captured U.S. pilot for all the world to see.

In the fall of 1962, the Cuban Missile Crisis occurred. Khrushchev introduced long range nuclear-capable missiles into Cuba — missiles whose nuclear firepower would have covered the United States like a blanket. Khrushchev was attempting to change the world balance of power in a single stroke. Fidel Castro was in fact urging the Soviet leader to proceed and launch a full nuclear strike against the U.S. However, in an "eyeball to eyeball" confrontation, President John F. Kennedy forced the Soviet leader to blink and back down, challenging him pointblank with a U.S. naval blockade of Cuba and an alerted strategic bomber and missile force ready to strike the Soviet Union with a massive nuclear strike.

After blustering just long enough to obtain a guarantee that the U.S. would not invade Cuba, Khrushchev had no recourse but to submit and withdraw the missiles, for his new superweapons were not yet operational. This was a serious humiliation and a loss of face before the Communist leaders and before the world. Khrushchev's days as the leader of the Soviet Union were numbered unless he staged some dramatic coup to recover.

Less than six months after his humiliation by Kennedy, Khrushchev struck back venomously with his just-operational scalar EM superweapons — the very ones he had referred to in 1960. On April 10, 1963 a giant Soviet scalar EM interferometer was used to produce EM interference with the electrical controls of the underwater U.S.S. Thresher atomic submarine off the U.S. East Coast. The stricken submarine, unable to respond to its jammed controls, sank to crush depth and imploded. *(Khrushchev had demonstrated to the leaders of the Communist Party that his weapons could easily defend against underwater subs by simply jamming their controls, making them helpless hulls which would sink to their implosive destruction.)*

At the same time the sub was stricken, a weapon signature was created. The sub's surface companion — the U.S.S. Skylark — encountered "EM splatter" which produced noise jamming and anomalous failure of multiple electronic systems. Some EM systems simply ceased functioning completely — then hours later resumed functioning as if nothing had happened. *(This cannot be done by normal electronic warfare, but is a signature of scalar impulse charging followed by gradual discharge.)* The anomalous EM interference experienced by the Skylark was so intense that more than an hour and a half was required to relay an emergency message back to Naval Headquarters that the Thresher was in difficulty and possibly lost. For details, see Bearden, *AIDS: Biological Warfare*, and *Fer-de-Lance*. For a conventional account, see John Bentley, *The Thresher Disaster: The Most Tragic Dive in Submarine History*, Doubleday & Co., Garden City, New York, 1975.

The standing scalar potential wave — discovered experimentally by Nikola Tesla on the night of July 3-4, 1899 in his Colorado Springs Laboratory — was fully developed theoretically by Whittaker in 1903. (See Reference 39). This scalar wave easily goes through the earth or the ocean. *It interacts with atomic nuclei, not electron shells.* Confronted with the ocean or the earth, the standing potential wave — with its hidden

internal bidirectional EM wave substructure — just sees its natural medium — a collection of nuclei. It is not disturbed or bothered by the ions in the ocean, which are such a formidable barrier to ordinary EM force field waves. With the intersection of two *very weak* scalar EM beams locked on the underwater Thresher, ordinary EM energy appeared by destructive interference of the scalar wave envelope, destroying the envelope and freeing the internal EM energies. Thus the use of two scalar interferometer beams in the ocean to intersect and jam an underwater submarine is rather straightforward, with scalar electromagnetic weapons. Indeed, an area of the ocean can simply be scanned by such an interferometer, to jam all underwater submarines and cause them to sink to their destruction. Note that, with their electronics squelched or jammed, such stricken subs cannot fire their nuclear missiles. Indeed, the electronic circuits in the nuclear weapons themselves are jammed and squelched, preventing arming and operation of the weapon.

On April 11, 1963, one day after the kill of the Thresher, a Soviet scalar EM interferometer weapon — probably the same one that ever so gently touched the U.S.S. Thresher — was gigantically pulsed, to intersect two giant potential pulses underwater, deep under the surface of the ocean 100 miles north of Puerto Rico. The tremendous outburst of unfolded EM energy in the destructive scalar interference zone produced a huge electromagnetic explosion deep underwater. Except for nuclear radiation, this *underwater electromagnetic burst* produced all the phenomena of a deep underwater nuclear burst. A cone of water rose out of the ocean to a height of half a mile, mushroomed out into a giant mushroom shape, then fell back into the ocean. The explosive eruption was observed by the pilot and crew of a passing U.S. jetliner, and reported to the FBI and the U.S. Coast Guard. *Khrushchev had demonstrated the weapon's ability to drastically attack and destroy underwater targets, or even use such great underwater bursts to destroy whole flotillas of surface vessels.* Ironically, just at the time that the waters off the East Coast of the United States were alive with ships searching for the lost Thresher, the same weapon that killed the Thresher was tested again, and no one realized what was occurring.

With these two strategic demonstrations and Soviet involvement in events leading to the assassination of President John F. Kennedy on November 22 of that same year, Khrushchev soundly avenged himself for his humiliation by Kennedy and the United States in the 1962 Cuban Missile Crisis. After that 1962 humiliating facedown and Khrushchev's forced withdrawal of his long range missiles from Cuba, the Communist Party leaders had been moving to remove Khrushchev from power. Khrushchev's dramatic, successful 1963 demonstrations and the death of John F. Kennedy, all under cover of an effective deception plan, persuaded the Communist leaders to continue him in power for a little longer.

Soviet tests against actual U.S. targets continued over the years. In 1972 at a secret meeting in Prague of the leaders of the European Communist parties, Leonid Brezhnev confirmed that detente was a hoax (*just as Gorbachev's Glasnost is a hoax!*). Brezhnev named 1985 as the year that the Soviets would be ready to control the skies, the oceans, and most of the land area as they might wish. In other words, all the great strategic scalar EM weapons would be completed, deployed, and operationally tested.

On December 12, 1985, Soviet "over-the-horizon radars" — with infolded Whittaker bidirectional EM wave structures to provide distance-independent holography and dispersion-free phase conjugate shooting — locked-on and destroyed a U.S. Arrow Airlines DC-8 jet aircraft at Gander International Airport, Newfoundland. In destroying the aircraft as a demonstration that the 1985 schedule had been met and the Americans were none the wiser, the Soviets killed 248 U.S. Army troops and 8 civilian crewmembers.

[See Figure 21]. The troops were U.S. paratroopers returning to their home station from UN peacekeeping duties in the Middle East. They were coming home for Christmas, and their parents, families, and friends were waiting for them in happy anticipation. The terrible tragedy took those happy young lives, and the lives of the fine Arrow crew — one of its best. It was not an accident, and it was not a terrorist bomb that destroyed the aircraft and killed all those young soldiers and the crew. It was a brutal, cynical, overt act of war by the Soviet Union. It was the final demonstration to Gorbachev of meeting the Soviet 1985 schedule for having these giant weapons deployed and operationally ready and tested. Just two weeks earlier, the weapon had been tested for the third time against a U.S. shuttle launch, but in a nondestructive manner. Some six weeks after killing the Arrow, the same weaponry would be used in a highly specialized kill of the Challenger with its crew of seven. But here is what really happened to the Arrow DC-8 on December 12, 1985.

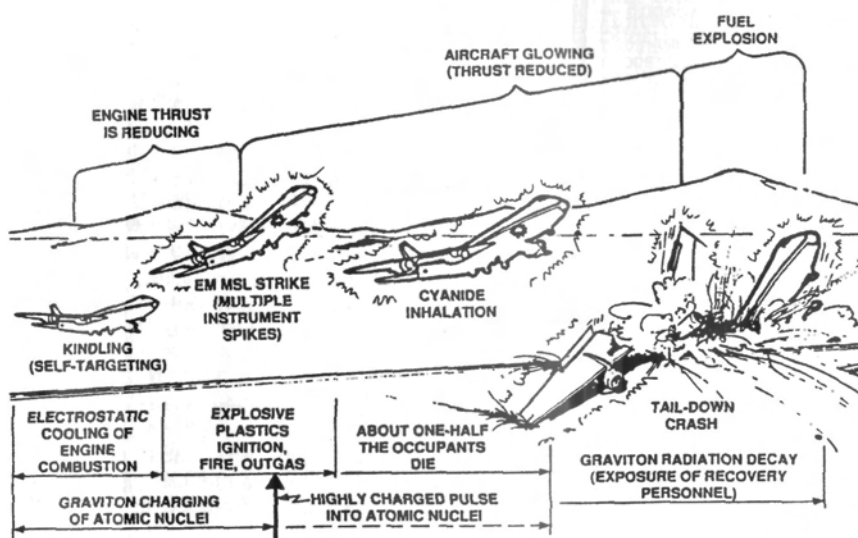


Figure 21. Death of the Arrow DC-8, December 12, 1985.

For brevity, we skip all preliminaries, and go immediately to the aircraft as it built up speed down the runway on its takeoff run. As the Arrow DC-8 aircraft sped down the runway, an eyewitness observed multiple beams of light form in the clouds overhead — in fact, she observed the self-focusing of the scalar potential beams of the interferometer. This self-focusing (self-targeting) began to cause electrostatic cooling in the aircraft engines' combustion gases. *This is easily accomplished by properly adjusting the bias potential on the electrical ground of the distant interferometer transmitters in Russia, so that the transmitter potential is below the ambient potential of the target — the aircraft speeding down the runway in Newfoundland. If the transmitter potential is lower, a gradient exists in the scalar beam Whittaker structure joining the aircraft and the Russian transmitters, and*

***energy will flow through the internal Whittaker structures, from hot spots on the airplane,— such as the fiercely burning combustion gases — to the distant transmitter electrical ground. This will electrostatically cool the greatest hot spots — the hot combustion gases inside the engines.***

The electrostatic cooling in the combustion gases inside the engines caused them to lose exhaust gas velocity, hence reducing the engines' thrust — just at takeoff rotation. As the aircraft began to rotate for liftoff, its engines were already losing substantial thrust, ***although they were still rotating at full speed.***

Once the weapon was focused, Soviets fired an electromagnetic missile directly at the aircraft, using distance-independent holography, employing the internal Whittaker EM wave structures of the scalar potential beams. The interfering sky beams flared as an electromagnetic missile formed and shot to the aircraft. ***(The EM missile strike was seen by the witness as just a ball or beam of light that streaked from the glowing beams in the clouds, down to the aircraft)*** The EM missile struck the aircraft in the right side of its fuselage ahead of the engines and blasted a hole right through the fuselage. ***This anomalous hole was noted. It was tested and found to have no chemical residues, proving that it was not due to a chemical explosion or a terrorist bomb. However, it was due to the strike of the EM missile!***

The fierce ball of EM energy penetrated the fuselage and struck the aircraft's interior plastics, explosively igniting them instantly — all just at liftoff. Multiple independent witnesses saw the aircraft glowing with an orange light, from the fierce firelight shining out the windows and the radiant energy of the locked-on interferometry beams. ***Interestingly, the witness that saw the beams form in the sky, and the beam shoot down and strike the aircraft, was not allowed to present her testimony to the official board of investigation.***

The flaring of the skybeams associated with the EM missile strike, and the glow on the aircraft from the electrical energy in the locked-on scalar EM beams, ***brightly lit up the cabs of trucks speeding down the nearby highway.*** The strike of the EM missile also caused a sharp electrical spike in two instruments on board the aircraft, as recorded by the flight recorder. ***The instruments and the flight recorder actually recorded the strike of the EM missile itself.*** [Figure 22]. The aircraft was glowing from the Whittaker beam structure holography and beam tracking and self-targeting. Inside the struck aircraft, in addition to the explosive fire and fierce firelight, violent outgassing from the explosive ignition of the plastics produced an explosion of soot and toxic fumes, including highly lethal hydrogen cyanide gas. With a breath or two, lethal doses of the toxic fumes were inhaled by the surrounding occupants. About half the personnel on board were already dead or dying of cyanide poisoning as the faltering plane reached its high point of less than 100 feet, still tail-down.

***The U.S. Army performed autopsies on the remains of almost all the dead personnel in the crash. These autopsies indicated that almost half the personnel were already dead of hydrogen cyanide poisoning before the airplane exploded on impact with the earth. This autopsy information was illegally withheld from the official investigating board for the accident — another deliberate criminal interference with the proceedings.***

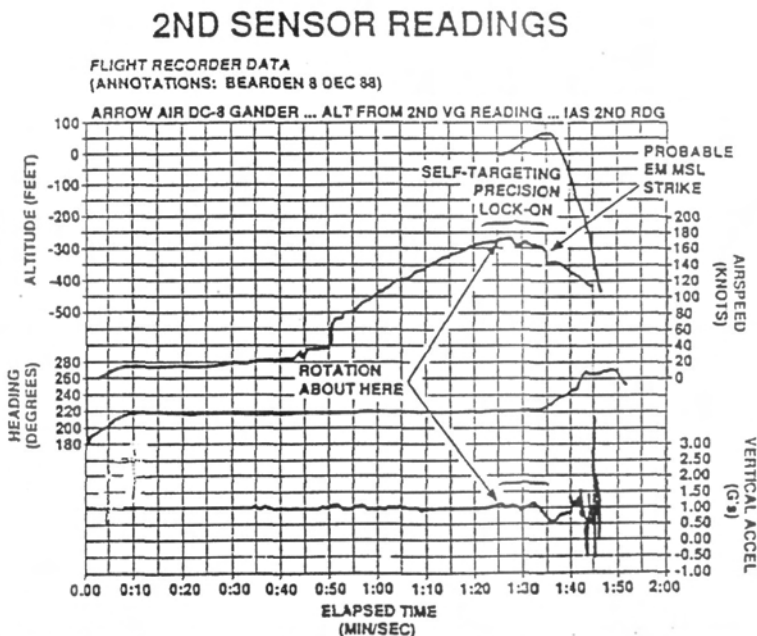
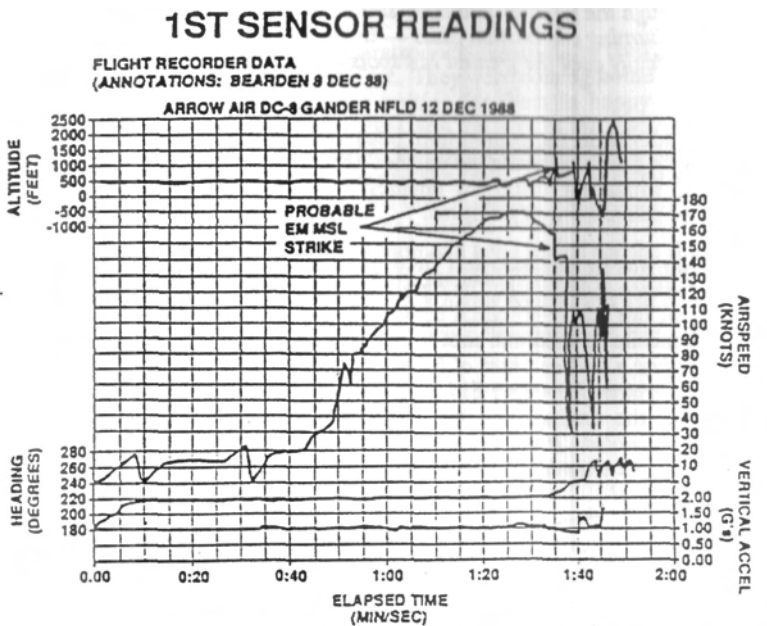


Figure 22. Electrical spikes in two on-board sensors of the Arrow DC-S, caused by strike of an EM missile during liftoff rotation.



But to return to the faltering Arrow DC-8. With its engine thrust steadily diminishing by electrostatic cooling of engine combustion gases, even though the turbines were rotating at good speed, the stricken aircraft sank, still tail down, and struck the ground, exploding and killing the remaining personnel on board, and scattering the burning wreckage over the crash area. *However, the sharp strike of the EM missile with its extremely powerful associated scalar EM pulse had intensely "quick-charged" and activated the atomic nuclei of aircraft materials, metals, etc in the adjacent areas of the aircraft surrounding the strike.* These Whittaker/scalar-activated (scalar-charged) nuclei were now emitting strong scalar graviton radiation. So strong scalar graviton radiation—scalar potential radiation—was issuing from the scattered parts and burning materials in the crash area. During the next few days, recovery personnel were exposed to this unsuspected scalar radiation. Many of them (about 60 or so) later developed delayed illnesses and health changes *similar to those in scalar-radiated U.S. Embassy personnel in Moscow: dizziness, headaches, nausea, stomach and intestinal upset, liver changes, blood changes, vertigo, and stress syndrome symptoms.*

**We accent this point most strongly:** We have seen these symptoms before, in personnel radiated by the Soviets at the U.S. Embassy in Moscow. The Johns Hopkins study of that situation clearly shows that the active ingredient is the scalar potential, not ordinary EM force fields. **We know it is scalar EM potential radiation that causes these delayed health symptoms.** *Further, from our study of the Kaznacheyev cytopathogenic effect, the Popp cellular communication system, and the Priore anti-cancer machine, we know the precise mechanism that causes the diseases.*

**The signatures of the use of the scalar EM weapon are clear.** Further, additional strong evidence exists of prior 1985 nonlethal testing of the same weapon that was utilized to kill the Arrow DC-8.

Several months before the kill of the Arrow DC-8, another anomalous loss of engine power by an aircraft is interesting. In February 1985, on a flight from Taipei to Los Angeles, a China Airlines Boeing 747SP about 300 miles northwest of San Francisco was subjected to a similar but milder "self-targeting and cooling of engine combustion gases" treatment by the same Soviet weapon. [Figure 23]. At 41,000 feet the aircraft first experienced a slight turbulence — probably just when the scalar lock-on of the weapon occurred, where the emerging outfolded EM energy in the surrounding air created some slight turbulence. Then self-targeting began in the Whittaker structure of the Woodpecker standing potential wave interferometer beams. The initiation of self-targeting narrowed the interferometer onto its engine combustion gases target in the aircraft engines, causing substantial emergence of negative energy in their combustion gases. This electrostatically and drastically cooled the combustion gases, causing seriously decreased exhaust velocity, loss of engine thrust, and a special type of engine flame-snuffing. First one engine failed from the drastic cooling of its gases, and then the others failed in short order. The failures and resulting plunge of the aircraft left several signatures, however, of the anomalous mechanism causing them. *Electrical power on board the aircraft did not fail, because the engine failure was anomalous loss of thrust in fully rotating turbines due to direct electrostatic cooling of the combustion gases in the engines themselves.* Hence the mechanically-coupled electrical generators were still rotating at full speed and producing electrical power, and so the aircraft electrical system maintained power. Passenger oxygen masks did not deploy, indicating that engine rotational power (not thrust!) was always available to operate electrical and pressurization systems. In a hair-raising, uncontrolled plunge of the aircraft toward the earth, the pilot fought to restart the engines and regain control of the aircraft. The instruments reacted anomalously. The crew reported that the stick shaker did not activate and the overspeed

warning clacker did not activate. Severe G-loads were experienced in the downward plummet of the aircraft, causing severe distortion of the tail cone and damage to that section.

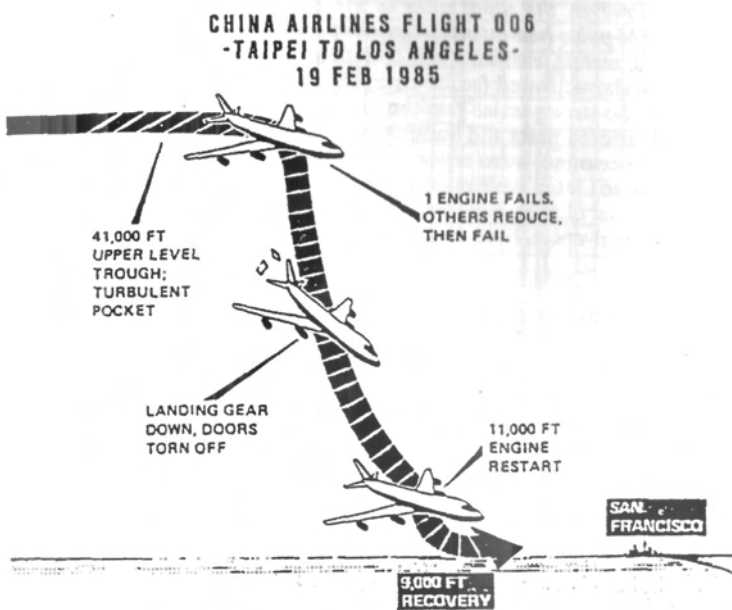


Figure 23. Engines disabled, a passenger jet drops six miles in two minutes.

Anomalies in the G-forces inside the aircraft also occurred. The flight engineer was totally immobilized by the g-forces at his cockpit duty station, yet the pilot and copilot directly on either side of him were unaffected. *This is a highly significant "selective gravity and selective inertia" anomaly and a clear signature of the negative energy being introduced into the aircraft by the self-targeting Whittaker beams.* As the aircraft plummeted down, it fell out of and away from the intersecting Whittaker interference beams. Apparently the distant Soviet operator deliberately did not continue to track and attack the target as it fell. Once the aircraft fell out of the EM kindling/outfolding in the beam intersection, the scalar activation in the engines and vicinity began to decay away. Since no drastic pulse input — such as the strike of an EM missile — was employed by the Soviet weapon, scalar activation was not severely high. Thus only light-to-moderate activation of nuclei occurred, and this is a short-lived phenomenon that will decay quickly once the steady activation beams are removed. In other words, the excess scalar charge on the nuclei began to discharge by scalar emission, and the cooling of the combustion gases began to decrease steadily.

Instrumental anomalies occurred as well, since instruments interact individually to being scalarly activated. The crew reported that the cockpit instruments detected immediate autopilot disengagement; flight data recorder instruments showed that the autopilot did not disengage during the initial descent. Thus both the pilot and the autopilot

conceivably were fighting to move the control surfaces during at least the initial phase of the fall. The landing gear lowered, but the pilot did not initiate the action.

After a fall of some 32,000 feet in about 2 minutes, the Whittaker/scalar EM activation was discharged sufficiently so that, with internal combustion cooling greatly diminished, **the** pilot managed to restart three engines and regain control of the aircraft. The crew then made an emergency landing at San Francisco International Airport. For example references, **see** (1) Bearden, *Fer-de-Lance*, Mar. 4, 1985, p. 175-176; (2) *Aviation Week & Space Technology*, Feb. 25, 1985, p. 28; Mar. 4, 1985, p. 29; (3) "Jetliner drops 32,000 feet; 400 aboard; 50 are injured," AP release, *Huntsville [Alabama] Times*, Feb. 20, 1985, p. 1; (4) "China Airlines pilot denies cockpit error," AP release, *Huntsville [Alabama] Times*, Feb. 21, 1985, p. A-9.

But there is much additional evidence that bears directly on the scalar kill of the aircraft at Gander.

On Nov. 26, 1985, two weeks before the kill of the Arrow DC-8, the same Soviet weapon was tested nondestructively against a U.S. shuttle launch at Cape Canaveral, Florida. (*This was the third nondestructive test using a launching space shuttle/booster as a convenient simulated ICBM practice target*) Seconds before the launch, an offset strike of an EM missile was actually photographed by Bob Gladwin: [Figure 24]. The photograph was later printed by this author [Bearden, *Fer-de-Lance*, 1986, p. 187.] Over the general launch area, another holographic ball of light — a marker beacon used by the Whittaker interferometer for precise distance-independent registration in the target area — was clearly observed by hundreds of persons and photographed by George Suchary. [Bearden, *Fer-de-Lance*, 1986, p. 182.] A similar holographic ball of light for precise registration was also videotaped above the explosion of a Titan 34-D missile seconds after launch in April 1986; that Titan was also destroyed by the strike of an EM missile or by a very strong EM pulse through the Whittaker channel of a Soviet scalar interferometer. [See Figure 25.] In 1986 a Delta rocket was also destroyed by the range safety offer after an anomalous internal EM surge command shut down the main liquid-fueled engine, with the three strap-on boosters still burning, so that the rocket went unstable. A mysterious light streak was observed on videotape to approach the rocket from below and from the side, rising and striking the vehicle, just before the mysterious main engine shutdown. Precisely such anomalous "internal command and control switching by introduction from an external source" has been exhibited by the British Ariel VI satellite as well. Also in Spring of 1986, a French Ariane missile suffered mysterious shutdown interference, resulting in the destruction of the rocket.

In the case of the Arrow DC-8, high U.S. and Canadian officials — not knowing anything of scalar electromagnetics — were probably very afraid that the aircraft had actually been bombed by a terrorist group, possibly on behalf of the Iranians. High U.S. officials were most anxious not to reveal anything further about the Iran/Contra weapons affair and its official U.S. governmental coverup. *This probably explains why a U.S. Army General quickly arrived at the Gander crash site and brought exceedingly strong pressure to bear to quickly bulldoze over the crash residue. It also probably explains why most eyewitness testimonies that contradicted the — probably deliberately selected — "ice buildup" cover story were withheld from the accident investigation board, and why the board was not permitted open access to the files and witnesses!* This unprecedented action, of course, is tantamount to deliberately withholding evidence from a court and interfering with a court trial — a criminal offense. High U.S. officials would have been most anxious to keep from revealing any sign of onboard fire or explosion, since — if the crash *had* been due to a terrorist bomb — this might fully open up the investigation and drive it sufficiently far afield to reveal the Iran/Contra coverup by the U.S. government.

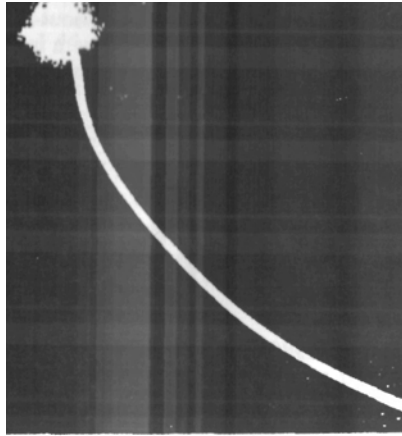


Figure 24. Strike of an EM missile, offset from launch of the shuttle Atlantis on November 26, 1935. Photo by Bob Gladwin. Several other major anomalies also occurred. Two weeks later, the same Soviet weapon destroyed the Arrow DC-S at Gander, Newfoundland.

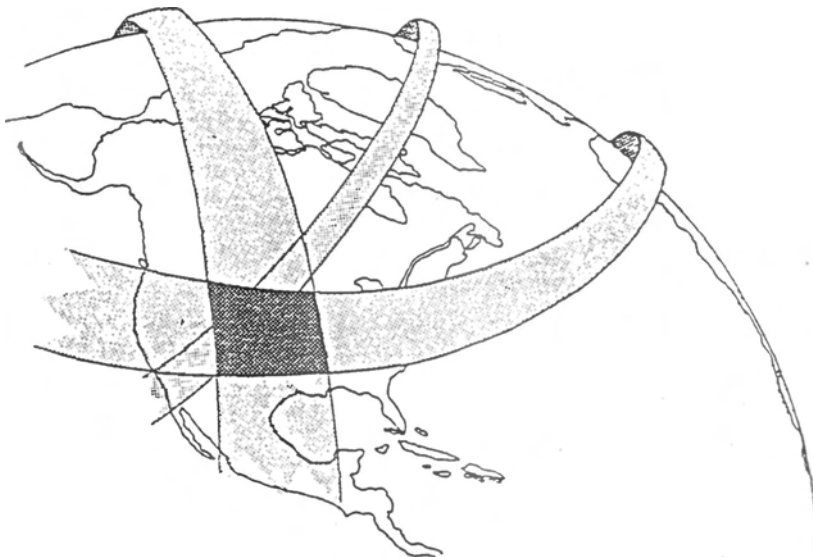


Figure 25. Soviet Woodpecker beams intersect over North America. This Soviet Tesla/Whittaker weapon can destroy U.S. ICBMs and bombers at launch and takeoff and during the initial phases of flight. It can also destroy carriers task forces at sea, and underwater submarines.

So in addition to the wanton Soviet act of war and murder of the troops and crew aboard the Arrow DC-8 aircraft, a gross miscarriage of justice occurred due to (1) technical ignorance of scalar electromagnetics and of signatures of the strike of a scalar EM weapon, (2) deliberate high-placed collusion and manipulation, and (3) probable mistaken off-the-record belief by high U.S. officials that the crash was really caused by a bomb planted by a terrorist group backed by Iran. By rather gross manipulation of the investigation, of the files, and of the board itself, the "accident" was officially blamed on human error due to failure to de-ice the aircraft. The members of the board split in their finding, however, and a minority opinion was also produced, denying the ice theory.

Families of the deceased U.S. soldiers have demanded a thorough reinvestigation. This researcher stands ready to open his files to the investigating board, a Congressional investigating committee, or any special board investigating the "accident". I will gladly provide substantial briefings regarding the complete history of Soviet scalar EM weapons and their testing, the precise mechanisms and signatures of scalar EM weapon strikes and kills, and specific indicators in the Arrow DC-8 crash incident that remove any doubt as to what actually caused the crash. There the matter stands.

62. Devyatkov and Golant, "Prospects for the use of millimeter-range electromaanetic radiation...", 1986.

63. Devyatkov, Ed., *Applications of Low-Intensity Millimeter Wave Radiation...*, 1985.

64. Again recall Khrushchev's 1960 statement that these new fantastic weapons *could wipe out all life on earth if unrestrainedly used*. Also recall Brezhnev's 1975 characterization of the weapons as *"...more frightful than the mind of man has ever imagined."* Even in more orthodox chemical warfare, the Soviets are forging ahead. For example, the prestigious *London Sunday Times*, Oct. 1, 1989 reported the Soviet development of genetically engineered toxins designed to have a very specific effect for a defined time — such as violent diarrhea, uncontrolled weeping, etc. The Soviets have consistently lied about the extent of their chemical and biological warfare developments.

65. Whittaker, "On the Differential Equations...", 1903.

66. Ibid., p. 355. Further, the speed of light itself is not constant, but varies as a function of the local energy density of spacetime — i.e., as a function of the magnitude of the ambient spacetime potential itself.

67. Multiplication of waves signifies a *modulation* process, which locks the pair together. In gravitobiology, this also locks paired photons together, building graviton structures and scalar EM potentials rather than EM force fields.

68. In present quantum field theory, the spin-2 graviton is taken to be the quantum particle of the gravitational field, while the photon is the quantum particle of the electromagnetic field. Essentially every field is so visualized, hence the name *quantum field theory*. In scalar EM, the graviton is envisioned as an average over time of the constantly changing photon coupling/decoupling less than, equal to, or greater than two, according to whether local spacetime is negatively curved, flat, or positively curved. This is also consistent with the modern view of a field: because of vacuum fluctuations, rigorously one no longer speaks of "the" field, but of *the probability of a particular field configuration*. See Charles W. Misner, Kip S. Thorne, and John Archibald Wheeler, *Gravitation*, W.H. Freeman and Co., San Francisco, 1973, p. 1191.

69. Thus we are implementing what heretofore has only been speculated upon. For example, see T.D. Lee, Chapter 25: Outlook, "Possibility of vacuum engineering," *Particle Physics and Introduction to Field Theory*, Harwood Academic Publishers, New York, 1981, p. 826. Also, recently it has been realized that spontaneous emission, for example, is not a fundamental property of matter as previously believed. Instead, it is actually a property of the atom-vacuum system and its virtual particle flux (VPF) exchange. It is also possible to alter that VPF exchange system and thus alter spontaneous emission. Cavity quantum electrodynamics is one of the recently uncovered examples by which spontaneous emission can be profoundly affected by altering (structuring) the vacuum states. See Serge Haroche and Daniel Kleppner, "Cavity Quantum Electrodynamics," *Physics Today*, Jan. 1989, p. 24-30.
70. There is in fact no precise definition at all of the gravitational field! In the general relativity theory, many mathematical things are associated with gravitation. Cf Misner, Thome And Wheeler, *Gravitation*, 1973, p. 399. Quoting: "...The terms 'gravitational field' and 'gravity' refer in a vague, collective sort of way to all of these entities. Another, equivalent term for them is the 'geometry of spacetime.'"

The present author's comment is that Whittaker shows us how to deterministically structure and curve spacetime — including locally — and utilize this structured spacetime curvature in an engineering fashion.

71. Activation of the atomic nucleus — by a deterministically patterned, massless charge structure — can be thought of as analogous to *charging a capacitor*. However, now in addition to the "gross overall magnitude of charge," we must speak of the *magnitude of each specific charge* of a particular graviton structure. The overall gross charge may have many infolded individual graviton structures (charges), each of which may be at a different magnitude. *Now we may deterministically collect, store — and then discharge and utilize — specific spacetime/graviton/virtual particle flux patterns/structures, all hidden inside the envelope of "normal" potential/charge and inside "normal" electromagnetics.*

Note that this notion of a set of "partial charges," each of differing graviton-patterned structure, is similar to the notion of "partial pressure" in mixtures of gases. In the case of gases, the overall mixture has an overall pressure, but specific parts of that total pressure are due to the specific component gases. In the new view, overall massless photon flux (electric charge) exchange between vacuum and a charged particle of mass, also consists of specific "partial charge" components. Further, some of these "partial charge components" can be deterministically structured.

Another way to say this is as follows: The overall stress of the vacuum exchange with a particle of mass constitutes the *overall charge* of the particle. In the case of *virtual photon* exchange between vacuum and mass particle, the overall exchange flux constitutes the overall *electric charge* of the particle. That overall electric charge (overall photon flux) may be composed of several components. *In some of these flux components, the photon flux exchange may be deterministically organized.* Thus we can speak of the partial "electric stress" or electric charge of each component. The overall electric stress, or electric charge, is the sum of the *component partial* electric stresses/charges.

We have moved the concept of electric charge an entire level deeper than is presently in orthodox physics, by introducing the notion that an overall statistical virtual particle flux has ordered components. Quantum mechanically, the electric charge of a charged particle is due to an exchange of virtual photons, between the vacuum and the mass of the particle. Now we have added hidden structure to that virtual photon flux exchange

that constitutes the electric charge of the mass. However, structuring of the (observably) massless virtual particle flux that is "charge" is easily proven by a *gedanken* (thought) experiment as follows: In present electrical physics, it is universally postulated that each potential has a charged particle somewhere as its source or generatrix. It is also universally postulated that, at a distance from the charge that is the source of the potential, the potential is inversely proportional to the square of the distance, in the most general ideal case. Thus the potential from the charge has everywhere in finite space a nonzero value.

Now suppose that suddenly an electric charge is introduced (spontaneously created) in a small region. This charge is the source of a suddenly created potential, which — it is usually assumed — travels outward in all directions from the source, at the speed of light, decreasing inversely as the square of the distance. Theoretically, this potential will continue to expand out into the universe forever, at the speed of light, never quite becoming zero. By common physics assumption, all charges in the universe have such traveling potentials moving out into space, all the time.

Now select a very distant point, many lightyears out into deep space. Through this point, incalculable weak potentials — from an incalculable number of distant charges — are moving through a small differential volume surrounding the point, from and toward all directions. These potentials are continually changing and interfering with each other. Since the distant charges were dynamic (i.e., part of moving systems, exploding stars, whatever), the potentials in the flux through the differential volume are highly dynamic and changing. The interferences of these potentials generates pair creation, pair annihilation, and other virtual particle processes at an incredible rate and in an incredible variety. In the differential volume of space around that point, *this violent, continual interference of potentials produces what is a violent, extreme, virtual particle flux.*

However, we can take such a differential volume around any point in the universe, and a similar virtual particle flux will be present, generated by the local interference of potentials from the distant charges of the universe. *The virtual particle flux of vacuum is completely deterministic a priori!* It is still *statistical*, because a macroscopic observer will be unable to have instruments fine enough to detect and measure each and every single virtual particle in the flux. However, it still contains *hidden order*. In short, this virtual particle flux of vacuum is *chaotic*, not *random*, as we have just shown. All electric charge of fundamental particles always did contain deterministic substructures. All we are saying is that, to have higher levels of order inside the charge structuring, all that is necessary is to cohere the part of the basic determinism into higher levels of determinism. To complete our gedankenexperiment, we now show that.

We now simply introduce some ordinary electric charges into and onto a geometric structure, such as a wire grid, or a shaped physical pattern of arbitrary intricacy. The charges adjust themselves according to the pattern, proximity, etc. When they are adjusted, we note that, in addition to the physical material, we have a specific, geometric *charge structure* in space at this location. Now we simply examine the potential radiating out into space from this charge structure. The potential from this overall geometric charge source will carry a structure into space that is precisely correlated to the charge source. Let us suppose that several (say, three) major geometric forms exist in the charge structure. Then three major geometric forms exist in the potential radiating out into space. Let us now traverse around the surface of a giant spherical shell — say a lightyear away — that has the geometric charge source as its center. The magnitude of the potential on each element of that surface is precisely correlated to the distant corresponding parts of the charge source. Let us now wiggle the charge source back and forth. One year later, corresponding wiggles (increases and decreases) of the values of

the potentials in each differential surface element will also fluctuate, in precise correlation to the manner of movement of the distant source one year earlier.

Mathematically, we are quite free to break the overall charge of the source into three parts, one for each of the three main parts of the geometric charge structure. By the superposition theorem, the potential from this three-fold charge structure, at any distant point in space, can be separated into three potential components or elements. Each of these potential components — which is now a *partial* potential with respect to the total potential — is precisely correlated to one of the three distant parts of the distant charge source.

But that demonstrates that the virtual particle flux of vacuum — the potential — at any point can be and is structured. Further, it demonstrates a case of deliberately structuring the distant potential — and the distant virtual particle flux of vacuum — deterministically. *Q.E.D.*

This line of reasoning was advanced by this author *conceptually*, many years ago. Happily, Puthoff has placed it on a rigorous mathematical basis, and extended it to show a complete giant universal feedback loop, via vacuum fluctuation, between all the charges of the universe. See H.E. Puthoff, "Source of vacuum electromagnetic zero-point energy," *Phys. Rev. A*, 40(9), Nov. 1, 1989, p. 4857-4862.

In the new concept, as a result of structuring of the charge flux, we have violated yet another of the physics tenets about charged particles: the present assumption that, in a collection of one type — say, electrons — each is always identical to any other. This identity assumption requires random variable treatment of the statistics, since the identical electrons are now a random charge ensemble. However, in the new view the electrons can have differing infolded *charge structuring*, and the specific virtual particle exchange of each electron with the vacuum may be differently structured, although the total charge of each electron is the same magnitude. That is, the *overall* electron charges may be identical, but the electrons may have differing and deterministic *partial* charges. Thus the overall potential from a charge may have a deterministic or *information* content that is deliberately created and formed (shaped) by a living system. This hidden "information content of the field," as the Soviets call it, has been used by biological systems since time immemorial. It is used in controlling their deepest, most subtle living functions. Normal "electron-wiggler" detecting instruments do not see this hidden information substructure.

The potential pervades an atom, completely through the electron shells and into the nucleus, centering itself there. As a particular partial potential is steadily impressed on the nucleus, gradually the nuclear potential changes its internal structuring so that more of it is composed of that partial potential and structured accordingly. This is known as *activation* of the nucleus, with a particular charge structure or information content. The EM coupling between nucleus and electron shells gradually changes the electrons in the shells slightly — including the covalent electrons bonding the atom to other atoms in a molecule. Gradually these bond structures also shift and change accordingly, as the activation pattern spreads through the bonding lattice structure. This is known as *activation of the material*. (Years ago, I called this activation process *kindling*, that is, the gradual integration/collection of deterministic virtual patterns (of the hidden information content of the potential field) into corresponding macroscopically observable patterns. Activation of a material (or solution, or gas, or wave, or an overall charge potential) with a hidden information content consisting of deterministic partial potentials is the hidden physical mechanism and basis for psychometry and homeopathic medicine, for example, but those are matters for discussion later in the paper.



In closing this note, an electron or other fundamental charged particle can also have a different *magnitude* of electrical charge than the accepted standard value. By internally structuring the potential and adjusting the magnitude of its components, the charged particle can be raised through a continuous spectrum of excited states (potential charge), and these excited states (this potential) can be deterministically substructured (tailored with hidden information) to affect the consequent interaction with a particle or other entity when the excited state discharges to interact with it. In this discharge, the hidden information content can be integrated and collected on the interacting particle, changing the normal interaction that occurs — an example being, of course, homeopathic potentization and subsequent deterministic structuring and electrochemical action in the body from the potentized solution. This is how the electrical pattern of a chemical or compound can be impressed into and onto the bonding structure of water, for example, to potentize it with the "form" or information content of that compound, even though not a single molecule of the original compound physically remains in the water. In the ensuing chemical interactions of the potentized water with the body, the activated information of the compound's form is discharged into the body and its cells, accomplishing electrochemical changes similar to those induced by the real physical compound itself when present. Electromagnetic homeopathy using the hidden information content of the field is the system of medicine that Devyatkov is talking about in his research and testing. See Devyatkov and Golant, *ibid*, and Devyatkov, Ed., *ibid*.

Obviously, for example, when a group of nonidentically activated electron charges interact, hidden order in the overall chaos (overall chaotic charge, or conglomerate potential) may lead to quite different macroscopic behavior of the system than pure random variable statistics would predict. That is, unexpected large-scalar ordered behavior of the entire system of collected, interacting electrons may emerge and even stabilize. This can affect the apparent inertia, mass, chemical, and electrical behavior exhibited by the system.

Which is why there presently is no really adequate definition of *gravitational field*. (See note 70 above). While this point is obvious, it is very important. If one structures the local spacetime, one can get devices to work abnormally, since now the interaction of spacetime with the devices is not just simply the statistical interaction of a randomized virtual particle flux. The "laws of nature" have been slightly altered, so to speak.

For example, Frank Golden once developed an electric motor which, after several years, produced an output power that was 1.67 times the input power. What we did not know was that his years of operation and struggle with the motor and its structure had gradually deterministically charged-up (activated) the local atomic nuclei and activated the local vacuum potential. Thus the motor gradually "grew" its increase in power, seemingly violating conservation of energy if one tried to regard the motor as a closed system. (Of course it was now an *open* system, receiving an input from the structured vacuum as a hidden source. In other words, Frank had formed a *structured quantum potential* in the local area, coupled to the machine.)

Frank then changed jobs and moved to a new location several hundred miles away. He thus moved the motor several hundred miles, whereupon it promptly relapsed back into just an ordinary electric motor, though still some 90 percent efficient. The motor was then in an *unstructured, unactivated* vacuum potential at the new location, and hence had lost its hidden quantum potential source.

Thunderstruck, the two of us were enlightened by Dr. William tiller, who was aware of the specific "growth effect" we had encountered, though apparently unaware of its

quantum potential mechanism. Tiller, a brilliant scientist, called it *growing the archetype*, and he had previously encountered the same phenomenon in his own seminal experiments with unusual detection systems.

We should have kept the original motor at the original site, made additional motors and moved them radially outward about 200 miles away or to where they would still exhibit about 1.1 to 1.2 efficiency. Then, all the while running the original motor in its original location, we should have run these "outrigger" motors until their efficiencies grew to 1.67. Then we should have extended the outrigger ring again, etc. After about five or six extensions, the vacuum structuring/activation and the activated quantum potential could be expected to spread on around the earth, in the entire local vacuum potential of the earth itself. Thereafter, that particular motor form would work anywhere on earth with 1.67 or so efficiency, because it would be able to directly tap a hidden vacuum source. Regrettably, Frank could not afford another five years or so to regrow the first potential activation/structuring for the motor's format.

The sharp-eyed reader should also note a specific analogy between this effect and Sheldrake's morphogenetic field. For the explanation of the quantum-potential basis for this effect — and for Sheldrake's morphogenetic field — see T.E. Bearden, "Update on Scalar Electromagnetics: New Breakthroughs," paper delivered to the USPA Annual Symposium, Sacramento, California, July 1989.

74. We choose to regard the EM wave in Whittaker fashion, as consisting of interfering scalar potential waves. See Whittaker, "On an expression of the electromagnetic field..." *ibid.*, 1904 for insight as to how such scalar interferometry produces ordinary EM forcefield energy. Any or all of these interfering potentials may be Whittaker-structured in accordance with Whittaker, "On the partial differential equations of mathematical physics," *ibid.*, 1903.
75. Specifically, it has an infolded Whittaker bidirectional EM wave pair structure (graviton structure). We are free to tailor that internal structure and use it as we wish.
76. By composing such bidirectional EM pairs deterministically and locking them all together, one can compose a Whittaker potential (structured local ST curvature) with a deterministic internal energy pattern. Perhaps an easy way to do this is to form the spectrum of ordinary waves desired, split the spectrum into two replicas, phase conjugate one replica, then mix the nonconjugated replica and its time-reversed replica in a highly nonlinear medium, such as a rotating plasma, to modulate them together. The union of a wave and its phase conjugate or antiwave unites the energy of both waves — which just adds *spatially*. However, the resultant E-fields and H-fields of the wave/antiwave combination are zero vectorially. Thus one has produced a pure, standing wave of scalar potential, without EM force field resultants, and the wave/antiwave component EM energies are localized and trapped. That of course is a *gravitational wave*. In additional photons/antiphotons are coupling and uncoupling. This represents the continual creating and annihilation of spin-2 photon/antiphoton pairs. But a spin-two particle, without EM force fields but with energy that is trapped spatially, describes a *graviton*. Further, the component E and H fields are still there vectorially, inside the zero resultant system. *Spatially the E-fields add and the H-fields add (by courtesy of the distortion correction theorem in nonlinear phase conjugate optics); however, they are respectively and directly oppositive in the time (fourth) dimension. Hence they produce an electromagnetic stress in the fourth dimension only, and thus on the rate of flow of time itself.* Since the magnitude of the spatially additive E-field summations and H-field summations in the standing potential wave are periodic, their time-stressing summation periodically varies the stress on the local rate of flow of time. In other words, we have also produced a *wave like*

*alteration of the rate of flow of local time.* Quantum mechanically, energy and time are canonical in the photon. Therefore the local spatial oscillation of trapped graviton energy and the local oscillation of the rate of flow of time are inversely related. When the trapped energy in the wave is greatest, the local rate of flow of time is slowest. Hence we have also inadvertently shown the exact physical mechanism which produces time dilation, and the curvature of spacetime as well.

77. Note that one nontrivial result is the emergence of a stable macroscopic world with macroscopic order and structure, from what was apparently "random" quantum change. One now can immediately verify the truth of the old adage, "As above, so below." Since the external world is just the outfolded collected content of the inner order, then internally reflecting our macroscopic scientific concepts and models is justified. This in fact resolves several quite puzzling problems such as (1) why mathematics, founded on the external view, applies to the internal and is thus so *universal*, (2) why "it is so simple!", to paraphrase Feynman's quizzical pondering of quarks, and (3) why a logic of only a few rules can be so all-encompassing. It also should tell us why the intensive study and investigation of hidden variable theories is the single most important thing that can be done to advance physics today.

78. If there is hidden order in a single quantum, one must consider that order as being in the virtual state. Otherwise it would not be hidden, but would itself be observable. Being observable would imply that it was at least one quantum in size, in which case it could not be hidden inside a single quantum because it would be equal to or larger than the quantum.

79. Again, for a most spectacular paper dealing with the order in the vacuum fluctuations, see H.E. Puthoff, "Source of vacuum electromagnetic zero-point energy," *Phys. Rev. A.*, 40(9), Nov. 1, 1989, p. 4857-4862. This important paper may be interpreted to establish that the virtual particle flux of vacuum is causal. Puthoff shows that the fluctuations of the zero-point EM fields in the vacuum are deterministic. If one interprets these fluctuation fields as creating and driving the virtual particle flux of vacuum, then the virtual particle flux is also deterministic. Of course this is a penultimate expression of the hidden variable viewpoint, and again, "as above so below." It is also a profound statement of the present author's fourth law of logic: That which is totally disordered must also be totally ordered. (Order is relative. That which is totally disordered locally is totally ordered nonlocally — just as Puthoff showed.) For explanation and proof of the fourth law of logic — including the proof that it has always been hidden in Aristotle's three laws of logic anyway — see Appendix III: "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," in Bearden, *AIDS: Biological Warfare*, 1988, p. 428-443.

80. Again, it can only be the collection of the hidden, infolded, stable order inside chaotic quantum change that produces a stable macroscopic physical reality.

81. Again see note 10.

82. A.D. Sakharov, *Dokl. Akad. Nauk SSSR [Sov. Phys. Dokl.]*, Vol. 12, 1968, p. 1040.

83. Stochastic gravitation is summarized up to 1982 in S. Adler, *Rev. Mod. Phys.*, Vol. 54, 1982, p. 729.

84. H.E. Puthoff, *Phys. Rev. A*, Vol. 39, 1989, p. 2333; *Phys. Rev. D*, Vol. 35, 1987, p. 3266; *Phys. Rev. A*, 40(9), Nov. 1, 1989, p. 4857-4862. See also Harold Puthoff, "Everything for nothing," *New Scientist*, July 28, 1990, p. 52-55.

85. For example, see Timothy Boyer, "The classical vacuum," *Scientific American*, Aug. 1985, p. 70; Walter Greiner and Joseph Hamilton, "Is the Vacuum Really Empty?", *American Scientist*, March-April 1980, p. 154; Roman Podolny, *Something Called Nothing — Physical Vacuum, What is It?*, Mir, 1986; I.J.R. Aitchison, "Nothing's plenty: The vacuum in modern quantum field theory," *Contemporary Physics*, 26(4), 1985, p. 333-391. For indications that a Soviet team under Chernetskii, at the Moscow Georgi Plekhanov Institute of the National Economy, may have succeeded in tapping the vacuum energy, see Andrei Samokhin, "Vacuum energy — a breakthrough?", *Speculations in Science and Technology*, 13(4), 1990, p. 273-275. For a note of cautious optimism as to the possibility of tapping the vacuum energy, see also H.E. Puthoff, "The energetic vacuum: implications for energy research," *Speculations in Science and Technology*, 13(4), 1990, p. 247-257. We note, however, that none of the discussions on possibilities of tapping vacuum energy to date have considered pumped phase conjugate mirrors as already exhibiting negentropy, Whittaker's two fundamental papers for structuring the vacuum and intertranslating between electromagnetic and gravitational energy, or the use of time-reversed entities such as the time-reversed EM wave. Also, for hints of a new application of nonlinear vibrations mechanics that may eventually apply to the problem by analogy, see I. Usvitsky, "Friendly Vibration," *Science in the USSR*, No. 6, Dec. 1990, p. 81-87.
86. Nikola Tesla, Colorado Springs Notes 1899-1900, Nolit, Beograd, Yugoslavia, 1978, p. 61-62. On July 3, 1899 and on through the evening into the morning of July 4, Tesla observed standing potential waves from a traveling thunderstorm, even after the storm had traveled a distance of several hundred miles. He recorded this significant discovery in his laboratory notes on July 4, 1899.
87. For example, see Nikola Tesla, "Pioneer Radio Engineer Gives Views on Power," *New York Herald Tribune*, Sep. 11, 1932. Quoting: "...I showed that the universal medium is a gaseous body in which only longitudinal pulses can be propagated, involving alternating compressions and expansions similar to those produced by sound waves in the air. Thus, a wireless transmitter does not emit Hertz waves which are a myth, but sound waves in the ether, behaving in every respect like those in the air, except that, owing to the great elastic force and extremely small density of the medium, their speed is that of light."

Our comment is as follows: Tesla was absolutely correct in his view that only longitudinal waves were produced in the vacuum. We detect and measure *transverse* EM waves in our detectors, however, due to their detection of *electron precession* in the electron gas of the detectors, wire probes, etc. themselves. We do not measure what is in the vacuum, but *the result on the electron gas in our instrument from interacting with what is in the vacuum*. For an explanation, see Bearden, Tesla's Electromagnetics and its Weaponization," *Proceedings of the 1984 Tesla Centennial Symposium*, International Tesla Society, Colorado Springs, Colorado 1984.

Further, Tesla's view of the ether as gaseous is essentially correct. If one characterizes the quantum mechanical virtual particle flux of vacuum, then this flux of particles is a peculiar "gas" whose component particles — instead of being persistent — come into being spontaneously, exist only fleetingly, and nearly instantly disappear again. But these particles are real, as has been shown by experiment, for their interaction produces real effects in observable detecting systems of the proper sort. Thus the ether is a gas of *fleeting*, nonpersisting (virtual) particles rather than of persistent particles. But it is a gas nonetheless, and Tesla was correct.

88. Essentially they have insisted that Tesla used only transverse wave (translation) EM and hence was only utilizing ordinary LC resonance. Indeed, Tesla was adamantly opposed to the Hertzian idea of transverse EM waves in the ether. He was very struck with the utilization of a wave-complex of frequencies rather than a single frequency — something he had demonstrated with his radio-controlled automata before 1900. E.g., see Nikola Tesla, The True Wireless, "*Electrical Experimenter*, May 1919, p. 29. Here one finds that, when considering Tesla's use of resonance, one "...must not view it in the light of present day science." (Ibid., p. 29.) Further, Tesla stated that his "...transmission through the earth is in every respect identical to that through a straight wire." (Ibid., p. 62).

In Nikola Tesla, "My Inventions: Part V. The Magnifying Transmitter," *Electrical Experimenter*, June 1919, p. 176, Tesla stated that "...this wireless transmitter is one in which the Hertz-wave radiation is an entirely negligible quantity as compared with the whole energy." On p. 178 of the same article, Tesla stated that "*The transmitter was to emit a wave-complex of special characteristics...*"

Tesla always insisted that EM waves in the ether were longitudinal (compression and rarefaction) waves similar to sound waves in the gaseous atmosphere, not transverse waves similar to those in plucked strings. In his article, "The True Wireless," p. 87 he stated: "*The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history.*"

89. For details see Bearden, *AIDS: Biological Warfare*, 1988; *Fer-de-Lance*, 1986 — and, of course, this present article.
90. When great military campaigns or undertakings are planned or in progress, a detailed and sophisticated deception plan is prepared and implemented to deceive the enemy as to the exact operational intent until the last possible minute. For decades such a massive deception plan has been utilized by the Soviets to deceive the West as to Soviet development and utilization of scalar EM weapons. This includes such characteristics as (1) massive censorship of Soviet scientific literature, (2) concealing the development and testing of scalar EM weapons by embedding them in the development and testing of orthodox weapons systems and on orthodox weapon ranges, (3) surreptitious testing of the scalar EM weapons in distant ocean areas at night, (4) constant stimuli — such as the microwave radiation of personnel in the U.S. Embassy — to ascertain whether or not the targeted government knows and recognizes scalar EM utilization, and (5) surreptitious testing against U.S. ships, aircraft, installations, and rockets to generate incidents which, on the surface, appear to be accidental explosions, spurious electromagnetic interference or noise, accidental aircraft crashes, normal metal fatigue, accidental rocket failures, etc.
- Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Physical Review, Second Series*, 115(3), Aug. 1, 1959, p. 458-491.
92. S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," *Reviews of Modern Physics* 57(2), April 1985 gives an extensive discussion of the Aharonov-Bohm effect (which proves the primacy of the potentials rather than the force fields) and an extensive list of references.
93. Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm effect," *Physics Today*, 39(1), Jan. 1986, p. 17-20 confirms that the Aharonov-Bohm effect has been proven to the satisfaction of all but the most diehard skeptics.

94. This author's rather crude booklet (Bearden, *Star Wars Now! The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization*, Tesla Book Co., 1984) may have been the first paper in English to clearly speak of the weapons implications of the Aharonov-Bohm effect, specific effects that could probably be attained at a distance by such weapons, and evidence for the Soviet development of them.
95. Whittaker, 1904, *ibid*.
96. See Bearden, *Fer-de-Lance*, and *AIDS: Biological Warfare* for details on Soviet weaponization of scalar EM interferometry. Also, without naming the Aharonov-Bohm effect as such, but utilizing the concept of scalar beam interferometry as an explanation of Soviet Tesla weapon developments, see this author's paper, *Tesla's Secret and the Soviet Tesla Weapons*, Tesla Book Co., 1981.
97. Bearden, "Appendix IV: List of Selected Incidents," in *AIDS: Biological Warfare*, 1988 contains an abbreviated chronology of events associated with Soviet development and testing of scalar EM weapons, including Aharonov-Bohm effect scalar interferometry weapons.
98. One considers the Whittaker potential's bidirectional EM wave structure as two bidirectional *energy currents* flowing in a hidden channel between the transmitter (initiation site) and the distant target where the Whittaker potential ends (i.e., the intersection site). Thus, with reference to this energy flow, when transmitter/intersection potentials are equal, no *net* resulting EM energy is transferred from transmitter to interference zone.

When the transmitter's potential is greater than the intersection zone's potential, net energy flows through the hidden channel, *flowing from transmitter to the target/interference zone*. It emerges there as positive energy (scattering/disordering energy, or heat). When the transmitter's potential is less than the intersection zone's potential, positive energy flows through the hidden channel, *flowing from the distant target/interference zone (and cooling that zone in the process) back to the transmitter (and emerging there to heat the transmitter)*. In the latter case, the transmitter must transfer the excess heat away or dissipate it locally.

It is as if the distant zone and the transmitter are directly connected together with little or no separation. In that case, one looks at the gradient in potential between the two points. For a positive gradient in one direction, the positive energy flows counter to that direction. For a positive gradient in the other direction, the positive energy flows in the reverse direction from the first case.

However, as can be seen from the bidirectional wave pairs in the Whittaker structural energy is always flowing through the hidden Whittaker channel in *both* directions simultaneously. From the transmitter viewpoint, positive energy is being transmitted and flowing from the transmitter to the zone in one wave, while negative EM energy is being transmitted and flowing in the other wave, from transmitter to the distant zone. The difference in potential between distant interference zone and the transmitter, however, determines which transmission channel — the negative or the positive energy - predominates. If there is no potential difference, then the energy flows are equal, and no net energy flow occurs. If a positive potential gradient exists from transmitter to zone then negative transmission predominates and heat energy extracted from the distant zone must be continually dissipated at the antenna. At the same time, the distant zone is cooled. If a negative potential gradient exists from transmitter to zone, then positive

transmission predominates and positive energy emerges in the distant zone as heating. Note that transmitting negative or time-reversed energy is precisely the same as receiving positive or forward-time energy.

An easy rule is this: To the transmitter, the sign of the gradient from transmitter to intersection zone is the reverse of the sign of the energy transmitted to the distant zone. Another rule is this: Biasing the electrical ground potential of the transmitter positively, produces positive energy transmission. Biasing the electrical ground potential negatively, produces negative energy transmission.

In scalar electromagnetics, every transmitter is both a transmitter and receiver — and so is every receiver. In one case the scalar interferometer extracts heat from the distant interference zone (the *endothermic* mode). In the other case the scalar interferometer produces heating in the distant interference zone (the *exothermic* mode).

99. Thus the weapon system has two modes: exothermic, where heat (EM disordering) emerges in the interference zone, and (2) endothermic, where cooling (EM reordering) emerges in the interference zone. Sharply pulsed, powerful inputs produce distant hot or cold explosions, depending upon whether the exothermic or endothermic mode is utilized.

The best way to regard the Whittaker interferometer operation is to visualize a hidden pipe connecting the transmitter and the distant target. In one mode, heat is pumped to the site (and the transmitter is cooled), while in the other mode heat is extracted from the site (and the transmitter is heated).

Extensive use of such interferometry in the endothermic mode results in large amounts of heat at the transmitter site, which must be exhausted. The Soviet scheme is to simply use another Whittaker interferometer connected to a distant exhaust site. That is, the second interferometer receives the excess heat energy from the endothermic first interferometer, and exothermically transmits it to a distant targeted "dump" or exhaust site.

Bennett Island is one such Soviet dump site, where hundreds of anomalous dumping "plumes" and exhausts — some over 150 miles long — have been photographed by U.S. weather satellites. For example, see "Explosive events seen on Soviet Island," *Aviation Week & Space Technology*, Sep. 26, 1983, p. 31 for pictures of Soviet scalar EM interferometry exhausting from Bennett Island. A second Soviet exhaust site exists on Novaya Zemlya.

At any rate, a scalar interferometer can produce heat in a distant zone or extract heat from that distant zone. It can do this gently or explosively, and for a short duration or continuously. Use of the interferometers in coupled pairs, one endothermic and one exothermic, allows one to serve the other as the disposer of waste heat. Also, when the exothermic mode is utilized, the server can extract the energy from a separate distant area and transfer it to the drastically cooling exothermic partner to maintain its temperature.

100. Since ordinary texts are quite confusing on the question of energy, a short dissertation is in order. First, present energy concepts are essentially based on the classical notion of a closed system. Quantum mechanically, that is not true at all; in the entire universe, there exists nothing that is static, and there exists not one single closed system. The vacuum flux/spacetime fluctuation is in violent motion. *Everything* supposedly "static" is in fact only an entity that emerges in this flux cauldron by being in dynamic equilibrium. Thus

one rigorously speaks of equilibrium states and their probabilities, not the existence of static things per se.

When several or many things are in states of stable equilibrium in the background flux, such that one can describe them as highly persistent entities with mathematical relationships between each other, then these equilibria may be said to comprise a *system*. In the classical system, the flux exchanges between the parts and the vacuum may then be ignored, since input exchanges and output exchanges precisely balance. Then the system may be treated as a closed system, with no hidden sources or sinks. Notice that this model presumes (1) there is no hidden order in the background flux, which is purely random and statistical, (2) there are thus no chaotic interactions of the flux exchange when integrated over a period of time or reasonable region of space; the integrated random flux exchanges simply "average to zero," (3) one does not deliberately introduce and collect hidden order in the vacuum flux, to generate a hidden source or sink, (4) one may use the concept of a *stable frame* to mathematically model the system, in which each smooth dimensional axis represents a highly integrated (over all space and time) zero average of fluctuations in the vacuum virtual particle flux exchange with the matter in the system, (5) note that the very prescription of a "universal frame" prescribes the smoothed geometry of the entire equilibrium universe in advance, as well as the nature of the vacuum VPF exchange with matter throughout the universe, (6) macroscopic conservation laws then rigorously apply to the system so long as the frame coordinates remain smoothed to zero *average* fluctuation everywhere, so that linear superposition applies, (7) quantized (fixed) magnitudes of charge, spin, inertial mass, universal constants, etc. apply universally, so long as the frame remains "smoothed", (8) the observer's "rate of flow of time" is assumed to be positive, and (9) the observer's rate of flow of time is assumed to be constant.

Assumption number 8 implies that (a) gravity is an *attraction* of mass, (b) all mass and energy are positive, (c) the vast majority of photoelectric interactions is between photons and negative electrons in atomic shells, so that positive time continues and the familiar macroscopic "forward arrow of time" physical reality is continually created and annihilated, quantum by quantum, at a fantastic rate, providing the past, present, and future, (d) almost all expended energy is scattered, so as to produce entropy, positive work, the positive flow of observer time, steadily increased disorder, etc.

Those are indeed formidable lists of assumptions and implications. They all rest on one fundamental premise: that the virtual particle flux exchange of vacuum remains statistical, random, and constant in volumetric density. Fortunately, today all those assumptions on the formidable list can be modified, because one can now engineer the vacuum's VPF exchange with the atomic nucleus and with charged matter. Now even physical reality itself, as we know it, can be modified and engineered at will, as the technology develops.

In the last two decades, nonlinear materials effects have been discovered which allow altering one or more (or all) of the preceding assumptions, because these effects allow altering and engineering the VPF exchange between vacuum and matter. These discoveries include four-wave mixing, time-reversed EM-waves and their pumping amplification, etc. They also include the Whittaker infolded hidden variable engineering techniques, still undeveloped in the West, and the new cavity quantum electrodynamics.

At any rate, these new principles and techniques allow one to directly engineer and structure the vacuum flux exchange with matter. They allow the translation of negative (reordering) energy from positive (disordering) energy, etc. They allow the production of negative time flow in photoelectric interactions, rather than just positive time flow. And they allow the production of negentropy rather than just entropy.



But how are we to understand negative energy and negative time and their implications?

**First, by energy** we actually mean *the amount of ordering or the amount of coherence* that exists in some dynamic, on-going process of the universe.

What we call static potential energy is actually stored in dynamic, stable, coherent equilibrium processes — it is just *not translating and not scattering*.

The very concept of potential energy, quantum mechanically, implies stable perpetual motion.

What we mean by kinetic energy is a *translating coherence in some underlying dynamic process*.

Kinetic energy is translating, but it is not scattering.

By positive work, we mean *the scattering of stored coherence (energy)*, which we refer to as the "*expenditure*" of energy. Rigorously, when we expend energy as work, we convert some stored coherence into incoherence (scattering), as seen by the forward-time observer. This is most important: It does not require energy expenditure per se to turn a shaft, but only to "*overcome the friction, or resistance to turning*."

What we really mean by "overcome the resistance" is that a certain amount of scattering will be invoked upon the energy coherence, producing incoherence. That way we "lose" the energy — i.e., we lose a certain amount of the coherence of the system. Relatively coherent systems, which in their operation produce scattering or incoherence (i.e., work), require constant input of more coherence (i.e., energy).

*In the not too distant future, machines will no longer be designed that way. Instead, they will employ time-reversed stages to flow incoherence ("scattered energy") back to coherence ("reordered energy").*

These time-reversed stages will of course be open systems, simply taking what is needed from the vacuum VPF to continually restore the input energy. Such machines, of course, will not need continual inputs of fuel in the macroscopic sense. In the microscopic sense, they will continually receive an input of virtual energy from a Whittaker-structured vacuum, cohering it into the macroscopic world, and gating it. In a sense these machines will all be heat pumps of a special sort. And as is well-known, the usable output of a heat pump may be considerably greater than the energy expended to pump the energy from the source to the scattering region (where it is scattered.)

In our present designs, to make matters worse, we normally utilize and expend the *carrier* of the coherence as well as the coherence. This creates the fuel concept, where the fuel is the carrier of the stored energy (coherence). If one only expends and scatters, one continually requires refueling in order to continue the scattering process (doing work). Present engineering and physics utilize the closed system concept exclusively, hence *it rigorously maintains the engineering of systems that require fuel to operate*.

Of course, it does not have to be that way. If we engineer and structure the vacuum, then one may take whatever energy one needs from an inexhaustible source. That is, if one has a flowing river and puts a paddlewheel in it, one can freely extract shaft power and do work with it. The paddlewheel is a "gate": it taps a hidden source for free. If we wish to be non-polluting, of course, we should return the *scattered energy* (the work) back to the

vacuum, as reordered VPF, rather than leaving the scattered energy in the macroscopic environment as "waste heat."

Thus one way to build a so-called *free energy device* is to cause the local vacuum to form a river of potential VPF gradient, and then to develop devices and processes to "tap that VPF river" of energy. This directly converts virtual energy to observable energy. By definition, when one converts virtual energy to observable energy, the local spacetime is curved. Note that the present highly restricted general relativity theory *assumes* one cannot tap the local energy of vacuum, because it assumes that the local spacetime is always flat!

Another way to produce a so-called "free-energy" device is to utilize pumped four-wave mixing, where natural stresses are utilized to furnish the pump waves. Converting normal potentials to Whittaker-structured potentials, and increasing the potentials on the nuclei of targeted material with activated charge structures, produces hidden structured nuclear potential sources (activated atomic nuclei) which can be tapped for energy by several methods. The beauty of this approach is that *once the charge structures are created on the activated nuclei, the vacuum simply replenishes the extracted energy (coherence) as fast as it is withdrawn*. This in fact was the type of source that Frank Golden had created via a local quantum potential, to provide a local source for his open-system motor and yield an output to input ratio of 1.67 (see note 73).

Yet another way to build a "free-energy" device is to recycle disordered energy, created by doing work, back to ordered energy. This is simply recycling disorder back to order, by use of time reversal. That is, when coherence is processed and expended into incoherence, that is what *generates* the forward flow of time. (Actually, that is *identically* the forward flow of time.) So forward time automatically implies the passing of order into disorder (i.e., scattering of EM energy). But since that is so, the opposite kind of time — negative time, or time reversal — must represent the passing of disorder back to order. So to accomplish negentropy, one must manipulate negative time generation devices so that the previously produced incoherent EM energy is returned precisely backwards along its previous scattering path. A priori, that will reorder the scattered energy.

This is done by a two-phase system. One phase looks normal: ordered energy is scattered to do normal work, resulting in a cache of disordered energy. The disordered energy is collected and time-reversed (phase conjugated) by pumped four-wave mixing. This returns the scattered energy precisely backwards along its previous scattering path, reordering it. Thereafter the recycled energy is used (scattered) again, recycled (reordered), used (scattered) again, etc. *Note that this can actually be done*, since all the microparts of the energy — whether ordered as a system or disordered as heat — are *individually* ordered equilibria in the disordered flux of vacuum. Everything is constantly driven by the vacuum flux anyway, everything is in an open loop system. Therefore it is a matter of *gating* energy that is already flowing as a flux, and hence in both manners; energy is both scattering (diverging from the particle to the vacuum, hence disordering) and reordering (converging from the vacuum back to the particle) constantly. *That is what the "virtual particle flux exchange of the vacuum with the charged particle" is already doing, all the time, with every charged particle, with fantastic power*. Electric charge — and its analogue, magnetic charge — are both tremendous dynamos. Electric charge and magnetism are already mighty engines, waiting for us to gate their energies to our needs. If we utilize our system as an open system and do vacuum structuring, we are in fact structuring (and gating) the virtual particle flux of vacuum. In other words, we are structuring massless charge — the potential itself. *We are then directly gating the vacuum's own engines*. It's just like putting a paddlewheel in a river, only the river we use is subtle, and so must be our paddlewheel.

Objections based on the second law of thermodynamics are usually raised. This law states that, *unavoidably*, in any operation in a closed system, if that operation does external work, you unavoidably reduce the order in the system. That, of course is true if and only if (1) the system is a closed system, and (2) time flow is forward or positive. Actually, the second law actually states only that *the flow of time is always positive*. A steady flow of time in a region means only that there exists a steady rate of scattering of EM energy in the region, a priori.

Note that we have violated both fundamental conditions required for the second law of thermodynamics to hold. Ergo, it should come as no distinct shock that we can readily violate the second law.

The second law presupposes *positive time flow only*. In positive time, the second law is the *law of entropy*. That is the law of disordering or scattering of EM energy. If we make a system produce some negative time, however, then we invoke the negative time aspect of the second law. In negative time flow, the second law is inverted, and it becomes then the *law of negentropy*. In a driven, open-loop macroscopic system, we may seemingly judiciously manipulate the virtual particle flux exchange to accomplish "free energy" and perpetual motion, *in the view of any observer who persists in regarding our macroscopic system as a closed system*.

So we can readily violate local conservation of energy, using amplified time-reversed (phase conjugated) EM energy operations. Whether or not we may be violating overall conservation of energy in the entire universe depends again upon an assumption that one must make. If we assume that the entire universe is closed and conservative, then we do not violate the overall conservation of the universe, but only violate it locally. If, on the other hand, we like the big bang theory and several other of the present very advanced cosmologies, then the vacuum merely pumped itself up to a vastly excited state and exploded, producing the present universe we live in. In that case, the universe is not closed, and it is not energy-conservative anyway. We leave it to the reader to take his or her choice in assumptions. In either case, we can violate the so-called conservation of energy *locally*, and run our motors and power our homes very cheaply indeed.

The amplification method is purely and simply standard, well-known four-wave mixing theory. What orthodox physicists have not realized is that the amplified phase conjugate replica produced by a true pumped phase conjugate mirror is already *negative energy*. As is already in the literature, the reflection/emission of a phase conjugate replica wave by the mirror *does not cause recoil of the mirror*. Pseudo-conjugation, which involves reflection/emission of an ordinary EM wave with a distorted wavefront, *does cause the mirror to recoil*. This destroys the present assumption in physics that the antiphoton and the photon are identical. *The antiphoton doesn't cause recoil of the mirror, but the photon does*. So the reader may rest assured that there is something in what the present author is saying after all, and *present physics is just flat wrong in some of its assumptions*.

Understandably, it is very much counter to the interests of the control groups to have this kind of knowledge spread around widely. We are not supposed to discover that, using *open system engineering techniques*, vacuum structuring, and amplified time-reversed waves, technology really does permit a "free lunch" after all. Obviously, however, our academic community is only going to get grants to study closed system conservative energy processes, not open system nonconservative energy processes incorporating time-reversed wave techniques.

At any rate, the scalar EM transmitter, since it is working in both the positive and negative streams of time, is to be considered both a transmitter and a receiver. A "system" is to be considered that consists of the transmitter, the target/receiver, and two hidden bidirectional Whittaker-EM-wave energy currents between transmitter and target. Depending upon the relative "grounding bias" vis a vis the transmitter, the receiver/target, and the local vacuum, one may cause "flow" of an excess of ordering from the transmitter to the receiver, or "flow" an excess of disordering from the transmitter to the receiver. Use of coupled scalar transmitters utilizes a two-stage flow process so that the effective flow of order/disorder is between a distant "dump site" and the desired "target site."

101. See Robert A. Fisher, Ed., *Optical Phase Conjugation*, Academic Press, New York, 1983 p. xv. On May 22, 1972 two Soviet scientists — from the P.N. Lebedev Physical Institute in Moscow — visited Lawrence Livermore National Laboratory. There they mentioned Dr. B. Ya. Zel'dovich's observation of an extremely curious "distortion undoing" property of the stimulated Brillouin backscattering process in a CS<sub>2</sub>-filled waveguide. Very little reaction by American physicists occurred initially. During the next five years, however, the American reaction had slowly grown until U.S. scientists had become quite interested in phase conjugation and the time-reversed EM wave — at least in *optics*. To this day, very little U.S. work has gone into developing practical microwave phase conjugation devices, in spite of the portentous weapon implications of time-reversed microwave beam weapons. Today, however, at least *some* microwave work in the pumped phase conjugation area has finally started. Cf Session 2, Directed Energy Concepts, Proceedings, SPIE Vol. 1061, *Microwave and Particle Beam Sources and Directed Energy Concepts* (1989), Jan. 16-20, 1989, Los Angeles, California.
102. Investigator Ken Moore has confirmed with the World War II German rocket team chief that the German radar team indeed encountered serious anomalies in their experiments.
103. For example, eventually the State Department placed ordinary aluminum window screens over the Embassy windows, etc. to act as Faraday shields. These screen shielded out some 90 per cent or so of the microwave *force field* component of the radiation, but essentially none of the standing Whittaker potential wave portion. This clearly showed the Soviets that we knew nothing of standing Whittaker potential waves, and the need for nonlinear absorber shielding rather than linear conductive/reflective shielding.
104. Two U.S. Ambassadors, Llewellyn Thompson (1953-1957) and Charles Bohlen (1957-1962, 1967-1969), predecessors of Stoessel, later died of cancer. Stoessel suffered nausea and bleeding in his eyes while at the Embassy (*New York Times*, Feb. 26, 1976) and was transferred from Moscow in September 1976 because of a strange blood ailment, and reassigned as Ambassador to West Germany. He also died with a leukemia-like disease some year later. Blood tests administered to personnel at the Moscow Embassy found that about one-third of the Embassy personnel had a higher than average number of lymphocytes in cell counts. Such elevated white corpuscle count — lymphocytosis — is evidence that the body is resisting some sort of disease-inducing agent. Such a reaction *could* occur in resistance to some sort of viral infectious agent, of course. However, *it would most certainly occur in resisting exposure to an EM cytopathogenic Kaznacheyev disease signal pattern in the Whittaker-structured potential.*

In 1959 during then Vice-President Nixon's visit to Moscow, fairly intense levels of microwave radiation were also detected at the U.S. Ambassador's Spasso House mansion in Moscow. Secret Service agent James Golden discovered the radiation of the Ambassador's residence. Nixon slept there and may have been irradiated for one night

before the Russians stopped the radiation. Nixon was scheduled to tour Soviet nuclear facilities, so the Secret Service team was well-equipped with dosimeters and radiation monitors. Interestingly, the radiation of the Ambassador's house was discovered with an *ionizing radiation detector* — a dosimeter. This is one of the few instruments that will detect standing scalar EM potential waves, since increase in the local potential and the addition of a Whittaker bidirectional EM substructure causes increased ionization of gases. Ionizing radiation detectors, such as nuclear dosimeters and Geiger counters, will detect such increased ionization of their internal gases. If the standing scalar potential wave is sufficient to cause ionization in these detectors, then the detectors will detect the Whittaker potential.

105. A. M. Lilienfeld et al, *Foreign Service Health Status Study...*, 1978.
106. Robert C Mallalieu, *A Model of the Microwave Intensity Distribution...*, 1980. See also *Microwave Radiation at the U.S. Embassy...*, Dept. of Commerce, 1981.
107. Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials...", *Physical Review*, 1959.
108. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions* [in Russian], Novosibirsk, 1981. See also previous notes regarding Kaznacheyev references.
109. N.D. Devyatkov, Ed., *Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine* [in Russian], IRE Akad. Nauk. SSSR, Moscow, 1985.
110. Whittaker, 1903, 1904.
111. By scalar interferometry, per Whittaker 1904; per Aharonov and Bohm, "Significance of electromagnetic potentials...", 1959.
112. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions* [in Russian], Novosibirsk, 1981.
113. N.D. Devyatkov, Ed., *Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine* [in Russian], IRE Akad. Nauk. SSSR, Moscow, 1985.
114. As was done in the Priore devices in France in the 1960s and 70s.
115. By subharmonic translation, the Kaznacheyev optical cytopathogenic signals emitted by cells dying of a particular disease can be translated into the microwave region, and a microwave pattern signature of that specific disease can be generated, in a manner similar to a carrierless radar of the ultra-wideband type. Then irradiating human targets, even many thousands of miles distant, with the specific microwave cytopathogenic pattern can induce the disease outright in the targeted population. Much weaker, continual radiation with the disease pattern will gradually condition the targeted biological systems for the specific disease, *gradually weakening their immune systems against that specific disease*. In this manner, a relatively harmless influenza, measles, or other disease can gradually be converted into a potent killer *in that targeted population*. In the mid-to-latter 1980's, the Soviets conducted precisely such immune-notching experiments against test mammals off the eastern coast of the U.S. — they targeted porpoises and lowered their immunity against a common organism normally infecting porpoises and simply making them a bit ill. In the test, hundreds and hundreds of porpoises died from the now-potent disease — not

because the disease organism had altered, but because their immune systems had been deliberated "notched" for greatly reduced immunity against that disease.

By time-reversing (phase conjugating) a Kaznacheyev cytopathogenic pattern for a specific disease, a specific electromagnetic antidote pattern can be generated. By irradiating a biological target with that antidote, that actual disease in the biosystem can be cured directly, by electromagnetic means. That is the actual treatment to which Devyatkov is referring, while concealing the role of internalized EM, phase conjugation, and the persistent structured scalar potential.

116. For an explanation of subharmonic oscillation, see "Nonlinear Forced Oscillations," in *Modern Mathematics for the Engineer*, Edwin F. Beckenbach, Ed., McGraw-Hill, New York, 1956, p. 18-20. Note that, in this graviton theory, gravitons are already linked spatially and harmonically/subharmonically. Subharmonic oscillation already exists; it does not have to be created.
117. Twin beams have often been detected in the radiation, fulfilling the requirements for Whittaker scalar EM interferometry. Just how long the Soviets have possessed this technology is evidenced by the fact that the microwave radiation induction of health problems and diseases in personnel in the U.S. Embassy in Moscow began in the mid-50s. The importance of the Embassy radiation, as an intelligence collection tool, is shown by the fact that the Soviets have pointedly continued the radiation even though several Presidents have protested and asked them to stop.
118. Standing Whittaker potential waves can easily penetrate the earth and the ocean, carrying their hidden bidirectional EM wave substructures with them. Therefore underwater and underground targets can be targeted with ease — as was the *U.S.S. Thresher* atomic submarine in April 1963 (see note 61 above). For example, drastic "on-site" or "near-site" testing of Woodpecker induction of disease would be helpful for calibration, realistic field exercise training, and analysis of results prior to actual EM attacks on human targets. For a possible massive Soviet long range EM BW test against dolphins off the East Coast of the U.S., see Joseph F. Sullivan, "Search widening for clues in puzzle of mounting dolphin deaths," *New York Times*, Aug. 9, 1987, p. 32; "Air search finds dolphin deaths are more common than suspected," *New York Times*, Aug. 13, 1987. See also Jean McNair, "Dolphins died of common sea bacterium; scientists baffled," AP release, *Huntsville (Alabama) News*, Aug. 19, 1987, p. B-5; Julia Lawlor, "Key: Failure of mammals' defenses," *USA Today*, Jan. 19, 1988, p. 1A-2A. One would also suspect that the Soviets have conducted other such tests around the globe.
119. For a probable similar Soviet long range EM BW test against seals in Europe, see David Dickson, "Canine distemper may be killing North Sea seals," *Science*, Vol. 241, Sep. 9, 1988, p. 1284.
120. Bearden, *AIDS; Biological Warfare*.
121. Bearden, *Fer-de-Lance*.
122. Bearden, "Soviet Phase Conjugate Weapons."
123. Bearden, *Soviet Weather Engineering Over North America*. See also "Strange Pressure Waves Crossed MidWest in 1990," *Watt Street Journal*, Jan. 15, 1991.
124. Bearden, "Update on Scalar Electromagnetics: New Breakthroughs."

125. See Martin Ebon, *Psychic Warfare: Threat or Illusion?*, McGraw-Hill, New York, 1983, p. 1-11. On June 11, 1977 *Los Angeles Times* reporter Robert Toth met with a Soviet biophysicist, Valery G. Petukhov, and received a manuscript — a scientific paper — from him. On walking away with the paper, Toth was seized by Soviet agents and taken to a police station for interrogation, as was Petukov. A senior academician from the Soviet Academy of Sciences, Professor I.M. Mikhailov, examined the paper and stated that it contained state secrets. Specifically, Mikhailov said: *"The article beginning Petukhov, Valery G., from the words 'micro-organism self-radiation...' to the words '...by means of vacuum particles in space,' states that within the content of living cells are particles... and these particles are grounds for discussing the fundamental problems of biology in the context of biology and parapsychology. There is also information about the uses of such particles. This material is secret and shows the land of work done in some scientific institutes of our state."*

After additional interrogation several days later, Toth signed a statement and was eventually released, as was Petukov.

Before the ill-fated meeting, Toth had previously met with Petukov, who was apparently Chief of the Laboratory of Bio-Physics at the State Control Institute of Medical and Biological Research. He informed Toth that he, Petukov, was working on a theory of parapsychology based on particles emitted from living cells. These particles could carry information and could explain the basis for parapsychology. In mid-June the Soviet biophysicist had telephoned Toth to tell him that his experiments had been successful, proving his theory. He wanted to give Toth a paper describing his work for publication in the West, because he knew the Soviet authorities would never let his paper be published. It was this 20-page paper that Petukov handed to Toth, triggering the seizure of both men by Soviet authorities.

From the above, one can almost certainly conclude that Petukov's particles that are "pieces of the vacuum medium" were gravitons, and the paper contained a theory of gravitobiology. From Mikhailov's statement, this information was considered a state secret. From our discussion of gravitons and their biological implications, Kaznacheyev's cytopathogenic effect, Devyatkov's information content of the field, and the long years of Soviet microwave radiation of the U.S. Embassy in Moscow, one can most certainly affirm that Petukov's experimental proof of his "particles" and his theory of them indeed duplicated highly classified Soviet EM BW weapons work.

The present author states emphatically that a scientific theory of parapsychological and paranormal phenomena can be formulated from the gravitobiology approach. Further, the formalized theory will be testable. Thus Petukov's information that he had actually experimented with his theory, and experimentally proven it, are consistent with gravitobiology.

126. T.E. Bearden, "Update on Scalar Electromagnetics: New Breakthroughs." The mechanism for generation of a quantum potential depends upon four-wave mixing effects inside the EM bidirectional wave structures of Whittaker potentials of atomic nuclei. A phase conjugate replica — including one that is amplified — is emitted from a pumped/stressed nucleus in response to a small scalar EM signal wave from another nucleus. That signal wave in turn may have been an amplified phase conjugate replica in response to yet another signal wave at another stressed/pumped nucleus.

In a dense signal environment, the probability for multiphoton interaction increases. But multiphoton interaction can easily constitute pumped four-wave mixing, if three waves

are involved (the fourth wave can be generated by the pumped mirror material, where two waves act as the pump wave and the third wave acts as a signal wave.) Thus in a dense signal environment, the probability of forming "pumping/stressing" of the nuclei increases as some function of the number of signals per second per unit volume, as does the probability of pumped four-wave mixing incidents. But notice that each amplified phase conjugate replica is not scattered, but returns precisely to the nucleus where the original signal wave was emitted. In other words, a laser-like coherence of exchange of energy between nuclei begins to occur as environmental signal density increases sufficiently. Note also that this is a *self-organizing and self-ordering behavior*.

The major communication between the nuclei, insofar as the input signal waves are concerned, is in the hidden EM bidirectional wave structure of the standing Whittaker potentials formed on each nucleus and extending out toward infinity, intersecting all the other nuclei in the region. The internal bidirectional EM waves are not limited to light speed, but may move much faster.

In this dense signal environment, then, increased self-ordering of the potentials in the Whittaker-communicating atomic nuclei begin to occur. An emission from one equipment or area is an input to all of the communicating, self-ordering nuclei. So in a variety of electronic equipments in a dense signal environment, gradual self-targeting by repetitive phase conjugation leads to coherent self-organizing of the nuclear potentials, and the formation of a quantum potential. In each equipment, "spurious" signals appear that are actually instantaneous inputs from other connected but distant electronic equipments.

Rigorously, a quantum potential has now begun to form among all the participating atomic nuclei. All participating electronic equipments begin to partially act as if they were all parts of a single equipment system, without spatial separation of the parts.

The precise physical mechanism by means of which the quantum potential is formed is an original discovery by the present author. Note particularly that formation of quantum potentials is subject to experimentation, using this approach and this mechanism.

For various papers treating the quantum potential (but without any notion of the actual mechanism that creates one), see *Quantum Implications; Essays in Honour of David Bohm*, Eds. B.J. Hiley and F. David Peat, Routledge & Kegan Paul, London & New York, 1987. Also, particularly see the various papers on this subject in *Quantum Concepts in Space and Time*, Eds. R. Penrose and C.J. Isham, Clarendon Press, Oxford, 1986. These two references are highly recommended.

127. See Mark Thompson, "Mixed signals may have misguided U.S. weapons," *The Washington Post*, Jan. 22, 1989, p. A4, for a good description of the incident.
128. Though details are still sketchy, there also appears to have occurred the formation of a quantum potential during a large exercise in the MidEast several years ago. The exercise involved a large number of aircraft, radars, radios, etc.
129. See B.J. Hiley and F. David Peat, "General introduction: the development of David Bohm's ideas from the plasma to the implicate order," *Quantum Implications...*, *ibid.*, p. 13. Quoting: "...the quantum potential contains an instantaneous connection rather than the expected retarded connection. In some ways this is like a reintroduction of a land of action-at-a-distance, a feature that goes against the whole historical development of physics." Also, particularly see the characteristics of a quantum potential, listed on p. 15. On p. 23, Hiley and Peat show that the quantum potential itself is determined by an



infolding-unfolding process. A more directly physical — and testable — model of this exact quantum potential formation process has been given by Bearden, as briefly sketched out in note 126 above.

For some nonlinear and nonlocal quantum mechanical implications upon certain general properties of spacetime events and processes, see Abner Shimony, "Events and processes in the quantum world," *Quantum Concepts in Space and Time*, R. Penrose, and C.J. Isham, Eds., Clarendon Press, Oxford, 1986, p. 182-203. Quoting from p. 186: "...unless revolutionary evidence is presented in favour of changing the relativistic conception of space-time structure, an acceptable hidden variables theory must conform to this structure." Quoting again (p. 192): "...local hidden variable theories may be possible only if relativity theory is replaced by a radically different theory of space-time structure." Note that the present photon-coupled averaged graviton theory of the structure of space-time is just such a "radically different theory" as is required. Particularly see Yakir Aharonov, "Nonlocal phenomena and the Aharonov-Bohm effect," *ibid.*, p. 41-56 for a discussion of modular variables and the capability to violate normal conservation laws of nature.

130. Particularly see Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Physical Review*, Series 2, 115(3), Aug. 1, 1959, p. 485-491. See also S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," *Reviews of Modern Physics* 57(2), April 1985 for an extensive list of references on the AB effect.

131. Particularly see Lee Smolin, "Stochastic mechanics, hidden variables, and gravity," *Quantum Concepts in Space and Time*, *ibid.*, p. 147-173 for a discussion of (1) some hidden variable possibilities in quantum mechanics, (2) (p. 165) the fact that Bell's theorem seems to indicate the possibility that nonlocal correlations may be found between any pair of systems which have previously interacted, and (3) (p. 166) the possibility that nonlocal variables might even dominate the energetics of a QP-connected system and swamp the local physics completely.

132. In Maxwell's original quaternion EM theory, the scalar component captured the internal, infolded stress energy when EM force fields interacted to produce zero force field resultants. In the vacuum, this infolded EM structure formed a local scalar potential and structured the local vacuum, curving local spacetime in the process. By discarding the scalar component of the quaternion, Heaviside threw this structured potential out of classical electromagnetic theory. This in turn threw out correlated "action at a distance" from EM theory. In appropriating Gibb's thermodynamics statistics for quantum change, quantum mechanics was constructed with a similar omission of hidden EM order (chaos), even though it statistically retained the necessity for action at a distance. See again note 52. Indeed, Heaviside's vector curtailment of Maxwell's quaternion theory can be experimentally shown to be in error, and a modification of Weber's action at a distance theory shown to be consistent with those experiments. For a discussion of the limitations of the Heaviside theory (so-called "Maxwell's theory"), see J.P. Wesley, "Weber Electrodynamics, Part I: General Theory, Steady Currents"; "Weber Electrodynamics, Part II: Unipolar Induction, Z-Antenna", *Foundations of Physics Letters*, 3(5), 1990, p. 443-490. Part III (to be published) will deal with the impact of Weber electrodynamics on mechanics and gravitation.

133. Again see note 52. By overstating his assumption that local spacetime was flat, Einstein excluded the internal, infolded EM structure of stressed spacetime, thus excluding EM from unification with general relativity. The single feature that could have unified electromagnetics, quantum mechanics, and general relativity was hidden, infolded EM

energy of spacetime. Ironically, each of the three disciplines eliminated this feature, either at its formation or shortly thereafter by retranslation.

134. T.E. Bearden, *Soviet Weather Engineering Over North America*, 1-hr, videotape, 1985.
  135. T.E. Bearden, "USSR: New beam energy possible?", *Defense & Foreign Affairs Daily*, 13(111), June 12, 1984, p. 1-2.
  136. For example photographs and artists illustrations, see Bearden, *Soviet Weather Engineering Over North America*, 1985. For a spectacular example of the rapid formation of three giant radial clouds over Los Angeles on Jan. 26, 1986, see Bearden, *Fer-de-Lance*, p. 168-169. Margaret Wilson observed these three sharp, distinct giant radial clouds form one after the other, at 10-minute intervals. These sharp cloud signatures were associated with Soviet bending of the jet stream sharply southward at Los Angeles, then steering the jet stream eastward across the U.S. far to the south of its normal path. The Soviet purpose was to bring cold arctic air down upon the Florida Panhandle, exposing the waiting shuttle at Cape Canaveral to abnormally cold temperature stress, and this was successfully accomplished. The shuttle, of course, was the ill-fated *Challenger*, which two days later was destroyed by the Soviet Union shortly after launch, on Jan. 28, 1986. For a discussion of the many positive indicators that the Soviets destroyed the shuttle, see Bearden, *AIDS: Biological Warfare*, 1988 and *Fer-de-Lance*, 1986.
- Indeed, the Soviet KGB gave a party at their Moscow headquarters on the evening of the day that the shuttle was destroyed. *The stated purpose of the party was to celebrate the success of their active measures against the Challenger!*
137. E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, vol. 57, 1903, p. 333-355. See also Note 13 above.
  138. D. Bohm, *Phys. Rev.* 85, 1952, p. 166, 180.
  139. E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372. See also note 13 above.
  140. Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Physical Review*, Second Series, 115(3), Aug. 1, 1959, p. 485-491.
  141. In fact, in his 1904 paper Whittaker shows that *all* classical force field electromagnetics can be replaced by scalar EM potentials and their interferometry. Specifically, any EM force field can be replaced by two scalar potential fields. Per Whitney, a completely accurate replacement may require four scalar potential fields rather than two. (Cynthia Whitney, private communication, 1990).
  142. Richard W. Ziolkowski, "Localized transmission of wave energy," *Proc. SPIE Vol 1061, Microwave and Particle Beam Sources and Directed Energy Concepts*, Jan. 1989, p. 396, 397. For a mention of this same bidirectional EM wave Whittaker structure in the potential connected with the Schrodinger wave, see Ignatovich (reference 16, above.).
  143. Thus they have not realized the profound importance of the Whittaker work, or that Whittaker wrote the basis for an *engineerable* unified field theory of electromagnetics and gravitation that has been extended and drastically weaponized by the Soviet Union.

144. The two previous ambassadors who died of leukemia-like diseases probably induced by the Soviet microwave radiation of the Embassy were Llewellyn Thompson and Charles Bohlen.
145. Walter Stoessel Jr. died of leukemia in Dec. 1986 at the age of 66. He served three tours in Moscow: 1947-49 as a second secretary, 1963-65 as minister-counselor, and 1974-76 as U.S. Ambassador to the Soviet Union. His latter tour as Ambassador to the USSR was cut short by reassignment to another post in 1976 because he had developed a leukemia-like illness.
146. See note 33 above.
147. See note 34 above.
148. The necessity for persistence of the structured potential in induction of diseases is that one must *charge up* or *activate* the potentials of the atomic nuclei in the targeted human cells with a consistent Whittaker bidirectional EM substructure. This charge-up can be a time-consuming process, particularly when fairly weak signals are involved. By holding a persistent potential value, the infolded deterministic Kaznacheyev/Devyatkov disease structure acts much like a "constant voltage charger" applied to a "capacitor" to charge it up — only, in this case, the infolded EM substructure is slowly charging-up the nuclear potentials of the atomic nuclei with the desired Whittaker infolded structure.
149. Executive Intelligence Review Special Report, Walter J. Hamerman et al, *An Emergency War Plan to Fight AIDS and Other Pandemics*, Feb. 15, 1986, p. 86.
150. Ergo Brezhnev's characterization of weapons of this nature as "*more frightful than the mind of man has ever imagined.*" Khrushchev in 1960 stated that these weapons were so powerful that, if unrestrainedly used, they could wipe out all life on earth.
151. See note 24 above. For a complete resume of the Priore Affair, see Jean-Michel Graille, *Le Dossier Priore*, De Noel, Paris, 1984 (in French). See also Christopher Bird, "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," in Bearden, *AIDS: Biological Warfare*, Tesla Book Co., 1988, p. 346-375.
152. For additional information on the Priore affair, see David M. Rorvik, "Do the French have a Cure for Cancer?", *Esquire* Magazine, July 1975, p. 110-111, 142-149. See also J.B. Bateman, "A Biologically Active Combination of Modulated Magnetic and Microwave Fields: The Priore Machine," Office of Naval Research, London Report R-5-78, Aug. 1978. See also J.B. Bateman, "Microwave Magic," Office of Naval Research London Conference Report, ONRL C-14-77, 1977.
153. See also A. Priore, "Method of Producing Radiations for Penetrating Living Cells," U.S. Patent No. 3,280,816, Oct. 25, 1966.
154. For a development of this startling thesis vis a vis the AIDS crisis, see T.E. Bearden, *AIDS: Biological Warfare*, Tesla Book Co., 1988. See also EIR Special Report, Warren J. Hamerman et al, *An Emergency War Plan to Fight AIDS and Other Pandemics*, Feb. 15, 1986.
155. Simultaneously phaselocking of 10 Hz pulses on multiple Woodpecker channels was previously mentioned in Bearden, *The Excalibur Briefing*, 1st Edn., Strawberry Hill Press, San Francisco, 1980, p. 258-260.

156. Robert C. Beck, "Extreme Low Frequency Magnetic Fields and EEG Entrapment, A Psychotronic Warfare Capability?", Bio-Medical Research Associates, Los Angeles, Mar. 1978.
157. S.K. Lisitsyn, "New Approach to the Analysis of Electroencephalograms," *Problems of Bionics (Selected Articles)*, p. 16-25, Defense Documentation Center Report AD 730045.
158. V.K. Ignatovich, "The remarkable capabilities of recursive relations," *American Journal of Physics*, 57(10), Oct. 1989, p. 873-878.
159. Ibid. Unfortunately Ignatovich apparently knew nothing of Whittaker's expression of this over eight decades earlier, and he does not reference Whittaker's work.
160. I am informed that the American researcher G. Wilbanks has successfully duplicated the Kaznacheyev experiments.
161. Again see "Nonlinear Forced Oscillations," in *Modern Mathematics for the Engineer*, Edwin F. Beckenbach, Ed., McGraw-Hill, New York, 1956, p. 18-20.
162. R. Courrier, 1977. "Expose de M. le Professeur R. Courrier secretaire perpetuel de l'Academie des Sciences fait au cour d'une reunion a l'Institut sur les effets de la machine de M.A. Priore le 26 Avril 1977." (in French).
163. M.R. Riviere, A. Priore, F. Berlureau, M. Fournier and M. Guerin, "Phenomenes de regression observes sur les greffes d'un lymphosarcome chez des souris exposees a des champs electromagnetiques," [Phenomenon of regression observed on the graftings of a lymphosarcome in mice exposed to electromagnetic fields], *Compt. Rend. Acad. Sci. (Paris)*, 1965, vol. 260, p. 2099-2102 [in French].
164. R. Pautrizel, M.R. Riviere, A. Priore, and F. Berlureau, "Influence d'ondes electromagnetiques et de champs magnetiques associes sur l'immunité de la souris infestee par Trypanosoma equiperdum," [Influence of electromagnetic waves and associated magnetic fields on the immunity of the mouse infected with the Trypanosoma equiperdum], *Compt Rend. Acad. ScL (Paris)*, 1966, Vol. 263, p. 579-582 [in French].
165. R. Pautrizel, A. Priore, AN. Pautrizel and P. Chateau-Reynaud-Duprat, "Guerison de la trypanosomiase experimentale par l'association de champs magnetiques et d'ondes electromagnetiques: une stimulation des defenses de l'organisme," [Cure of the trypanosomias by associated magnetic fields and electromagnetic waves: a stimulation of the organism's defenses], Communication presented to the *Journées Nationales Microondes — Colloque Hertziennne et Dielectriques*, Lille 26-29 juin 1979, p. 31.
166. See Richard Kidd et al, "Evolution of the modern photon," *American Journal of Physics*, 57(1), Jan. 1989, p. 27-35.
167. Our detectors measure on the time-forward photon half, not the time-reversed photon (antiphoton) half. The antiphoton half produces a slight recoil force (Newton's third law reaction force) in our instruments, which we totally ignore.
168. For confirmation that the Heaviside equations — which presently are erroneously called "Maxwell's equations" — are not to be found anywhere in any of Maxwell's books and papers, see H.J. Josephs, "The Heaviside papers found at Paignton in 1957," *Electromagnetic Theory by Oliver Heaviside*, including an account of Heaviside's

unpublished notes for a fourth volume, and with a foreword by Sir Edmund Whittaker, Vol. m, Third Edition, Chelsea Publishing Co., New York, 1971, p. 647. See also Sir Edmund Whittaker, "Oliver Heaviside," *Bulletin of the Calcutta Mathematical Society*, Vol. 20, 1928-29, p. 202. See also Paul J. Nahin, *Oliver Heaviside: Sage in Solitude*, IEEE Press, New York, 1988, p. 9, note 3.

Also, it is little known that, in his later years, Heaviside may again have turned to quaternion operations, and even developed a "unified" theory of electromagnetics and gravity. These papers were never published, but were reported found in 1957 (some electrical scientists, however, continue to dispute the authenticity of the papers, which were found under some floorboards in the apartment where Heaviside lived alone until his death). Little or no adequate review of this unified theory has been made, though several writers have waxed eloquent and expressed judgements pro and con as to the theory's authenticity, its promise, or its alleged uselessness.

169. Henry C. Monteith, "Dynamic Gravity and Electromagnetics Processes, Part I," *Journal of the U.S. Psychotronics Association*, 1(2), 1988 (presented July 1987).

170. Henry C. Monteith, "Dynamic Gravity and Electromagnetics Processes, Part II," July 1988. Also, in July 1989 Monteith presented two other fundamental papers in this area to the Annual USPA Symposium in Sacramento, California.

171. Henry C. Monteith, "Visualization and Duality in Mathematical Physics," Apr. 15, 1986.

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# POSSIBLE WHITTAKER UNIFICATION OF ELECTROMAGNETICS, GENERAL RELATIVITY, **AND** QUANTUM MECHANICS

## PART I: BACKGROUND

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### ABSTRACT

Unrecognized for what it was, in 1903-1904 E.T. Whittaker (W) published a fundamental, engineerable theory of electrogravitation (EG) in two profound papers. The first (W-1903) demonstrated a hidden bidirectional EM wave structure in the scalar potential of vacuum, and showed how to produce a standing scalar EM potential wave  $\sim$  the same wave discovered experimentally four years earlier by Nikola Tesla. W-1903 is a hidden variable theory that shows how to deterministically curve the local and/or distant spacetime using EM. W-1904 shows that all force field EM can be replaced by interferometry of two scalar potentials, anticipating the Aharonov-Bohm effect by 55 years and extending it to the engineerable macroscopic world. W-1903 shows how to turn EM into G-potential, curve local and/or distant spacetime, and directly engineer the virtual particle flux of vacuum. W-1904 shows how to turn G-potential and curvature of spacetime back into force-field EM, even at a distance. The papers implement Sahkarov's 1968 statement that gravitation is not a fundamental field of nature, but a conglomerate of other fields. Separately applied to electromagnetics (EM), quantum mechanics (QM), and general relativity (GR), an extended superset of each results. The three supersets are Whittaker-unified, so that a testable, engineerable, unified field theory is generated. EM, QM, and GR each contained a fundamental error that blocked unification, and these three errors are explained. The Schroedinger potential can also be structured and altered, indicating the direct engineering of physical quantum change. Recently Ignatovich has pointed out this hidden bidirectional EM wave structure in the Schroedinger potential, without referencing Whittaker's 1903 discovery of the basic effect. Coupling of photon/antiphoton pairs into spin-2 gravitons, and decoupling of gravitons to yield paired photons, follows and extends photobiology. An engineerable, hidden-variable theory of the operation of mind, personality, and memory can be constructed and tested. Some of the profound implications for all of physics and biology are pointed out.

### Electromagnetics Theory Has Foundations Difficulties

There exists today a small but growing number of serious scientists who have become aware that the presently accepted electromagnetic theory is seriously flawed. Shortcomings in the theory are readily cited.

For example, in railgun experiments the Lorentz force law has been falsified. It was always an approximation, and does not adequately approximate at high energies.<sup>1</sup>

Also completely contrary to orthodox EM theory, the EM force fields are not primary agents at all, but are effects produced in and on the physical system by the potentials. As an example, we cite the Aharonov-Bohm effect, which proves that, even in the total absence of the force fields,

the potentials remain and can interfere at a distance to produce real effects in charged particle systems.<sup>2</sup> Finally the AB effect has been proven to the satisfaction of all but the most diehard skeptics.<sup>3</sup> However, its fundamental impact on the basic notions underlying classical EM theory continues to be resisted by all but a handful of scientists.

These present shortcomings were not present in the original *quaternion* EM theory by James Clerk Maxwell.<sup>4</sup> Indeed, the original Maxwell theory contains many things that were mistakenly eliminated from the abbreviated *vector* theory that was formulated by Heaviside and Gibbs, and finally adopted.<sup>5</sup> Further, these things that do not exist in conventional EM theory, but that exist in Maxwell's actual quaternion theory, can be used in specially designed equipment, and the operation of that equipment will be inexplicable by present-day electromagnetic theory. This can be even further explained and developed experimentally according to Whittaker's fundamental approach.<sup>6</sup>

In a direct sense, Whittaker showed how to engineer the structured scalar potential, to build vacuum engines with hidden electromagnetic wave structures that are still unsuspected today. Much of the content of the Aharonov/Bohm paper was anticipated - and extended in an engineerable, testable manner -- by Whittaker in 1903 and 1904.

In 1903 Whittaker showed that a standing scalar potential wave can be decomposed into a special set of bidirectional EM waves that convolute into a standing scalar potential wave. As a corollary, then, a set of bidirectional EM waves -- stress waves -- can be constructed to form a standing scalar potential wave in space. Since all potentials represent trapped energy density of vacuum, they are gravitational in nature.<sup>7</sup> The standing Whittaker scalar potential wave represents a standing wave of variation in the local curvature of vacuum, sharply in contradiction of the assumptions of present electromagnetics and general relativity.<sup>8</sup>

The very next year, Whittaker's second paper (cited above) showed how to turn such G-potential wave energy back into EM energy, even at a distance, by scalar potential interferometry, anticipating and greatly expanding the Aharonov-Bohm effect. Indeed, Whittaker's second paper shows that the entire present force-field electromagnetics can be directly replaced with scalar potential interferometry.

This is even more striking when one realizes that potentials pervade through the electron shells of an atom, directly reaching the nucleus and centering on it. *External* changes (gradients; force fields) of the potentials interact primarily with the electron shells of the atom. The primary interaction between the infolded, *internalized* EM bidirectional wave structure of a Whittaker potential is with atomic nuclei, rather than the atom's electron shells, because in the standing Whittaker potential wave the magnitude of the external potential is not changing. For the first time, then, the Whittaker methodology allows the direct engineering and structuring of the nuclear potentials themselves, even with miniscule EM power, which is a new capability of striking importance and application. As just one example, the binding energy of an atomic nucleus is directly accessible and - theoretically -- engineerable.

Recently Ignatovich has pointed out the hidden bi-directional EM wave structure in the Schroedinger potential, without referencing Whittaker's 1903 discovery of the basic effect.<sup>9</sup> Also, recently modern researchers, working on acoustic missiles and with the scalar acoustic wave equation, have "rediscovered" Whittaker's 1903 infolded bidirectional planar waves inside the scalar wave.<sup>10</sup> They do not appear to have yet recognized its relevance to their work in *electromagnetic* missiles.<sup>11</sup>

Whittaker's paper takes on a significant new meaning, however, in light of Sakharov's 1968 hypothesis that gravitation is not a primary field of nature, but is produced as a result of interactions of other fields.



## Sakharov's Hypothesis and Stochastic Electrodynamics

Recently new developments in stochastic electrodynamics (SED) have shown that many fundamental parts of physics are "already unified" in terms of electromagnetics and gravitation. SED experienced almost explosive activity and development following Sakharov's 1968 hypothesis that the gravitational field may not be a primary field of nature, but a secondary or residual effect associated with other nongravitational fields.<sup>12</sup> Actually, general relativity has always focused on energy as the thing which really has gravitation. Trapped energy, such as mass, is particularly important. But since mass is essentially trapped EM energy, relativity has essentially assumed Sakharov's hypothesis anyway, without stating it so explicitly. Further, it considers "the" gravitational potential as a conglomerate of other things.<sup>13</sup>

Starting from Sakharov's postulate, to the first order gravitation should be due to some aspect of the EM field, since EM is the strongest force normally encountered in the macroscopic world experimentally. Thus Sakharov focused attention upon the zero-point EM energy fluctuations (ZPF) of vacuum. Sakharov conjectured that the Lagrange function of the G-field is generated by vacuum polarization, due to fermions.<sup>14</sup> Akama et al examined the potential generation of gravity as a collective excitation of fermion-antifermion pairs.<sup>15</sup> Haxlacher and Mottolo proved that spacetime (ST) curvature can arise from the quantum fluctuations of pure gauge fields.<sup>16</sup> Zee showed that gravity is generated as a symmetry-breaking effect in quantum field theory in which a dynamical scale-invariance breaking is postulated to take place at energies near the Planck mass.<sup>17</sup> Amati, Veneziano and Yoshimoto showed that in pregeometric models the Einstein action and metric may be generated from quantum fluctuations of matter fields.<sup>18</sup> A review of the exploding field was given by Adler,<sup>19</sup> with particular emphasis on the case of renormalizable field theories with dynamical scale-invariance breaking, in which the induced gravitational effective action is finite and calculable.

Recently the well-known physicist, H.E. Puthoff of the Institute of Advanced Study at Austin, has applied the SED approach to significantly advance the stochastic electrodynamics field. He has successfully explained why the atom's orbital electrons do not decay into the nucleus, even though by conventional EM theory each electron must constantly radiate EM energy, since it is constantly accelerated.<sup>20</sup> He has also shown that gravitation can indeed be regarded as an induced effect associated with zero-point EM fluctuations of the vacuum.<sup>21</sup>

Finally, Puthoff has shown a feedback-derivation of the source of the vacuum EM zero-point energy fluctuations from quantum fluctuation motion of particles driven by the ZPE.<sup>22</sup> Thus quantum fluctuation motion of particles and vacuum ZPE fluctuations are connected by a causal, self-regenerating cosmological feedback cycle.

There are several important conclusions to be taken from the important SED work since Sakharov's seminal suggestion, as follows: (1) In stochastic electrodynamics, very solid theoretical foundation exists for electrogravitation. (2) The vacuum EM ZPF may be regarded as causally connected to quantum mechanical particle jitter (Zitterbewegung motion) and vice versa, though the feedback mechanism into the virtual particle flux of vacuum is normally hidden by the large-scale integration represented by any macroscopic object or process. (3) The SED theoretical demonstration of this hidden mechanism adds new emphasis on the rather neglected hidden variable theories. (4) In some fashion, statistical quantum change is chaotic rather than random, *for it has already been shown by Puthoff that the vacuum ZPF fluctuations driving everything are totally deterministic.* It follows that, theoretically, hidden order already exists in quantum change, and quantum change must be *already chaotic.* Thus one can state that quantum change can at least partially be deterministically ordered, affected, and manipulated, *because it already is.* (5) It follows that there may well exist engineerable mechanisms that can affect or manipulate quantum change.

What Whittaker has described in his 1903 paper is a *standing electrogravitational wave* -- a standing wave in the local curvature of spacetime itself - that can readily be constructed experimentally. This Whittaker standing potential wave is precisely the new form of standing EM wave that Nikola Tesla had experimentally discovered being radiated from a thunderstorm four years earlier, on the night of July 3-4, 1899, and which he recorded in his Colorado Springs Notebook on the morning of July 4, 1899.<sup>23</sup> Further, Whittaker's paper directly implies that the hidden variable determinism shown by Puthoff to be driving the zero-point EM fluctuations can also be engineered, both locally and at a distance.

In short, Whittaker's 1903 paper shows how to turn electromagnetics into gravitational potential. Unknowingly, Whittaker already showed the correct engineering way to unify EM and G fields, and already falsified one of Einstein's later primary GR assumptions -- that the local spacetime is never curved — in a testable manner, over a decade before Einstein published his theory of general relativity.

In the very next year, 1904, Whittaker's second paper (orally presented in 1903) was published.<sup>24</sup> In this little-noticed paper Whittaker shows that *all* classical force field electromagnetics can be replaced by scalar EM potentials and their interferometry. Specifically, any EM force field can be replaced by two scalar potential fields and scalar interferometry. The combination of this paper and the 1903 *Mathematische Annalen* paper not only includes the Aharonov-Bohm effect, but specifies a testable method for producing a macroscopic Aharonov-Bohm effect, even at large distances.<sup>25</sup>

### Present Electromagnetic Theory is Incomplete

As stated above, Maxwell's original EM theory was written in quaternions, which were an extension to the complex number theory and an independent system of mathematics. In short, since the quaternion is a hypernumber, Maxwell's theory was a *hyperspatial* theory — not just the limited three-dimensional subset that was extracted and expressed by Heaviside and Gibbs in terms of an abbreviated, incomplete vector mathematics.<sup>26</sup>

Oliver Heaviside was a brilliant, self-taught genius who never formally attained a university degree, and whose papers were printed in technical magazines rather than scientific journals. When Maxwell published his *Treatise* in 1873, Heaviside was just teaching himself differential equations. Heaviside's imagination was completely seized by Maxwell's book, and Maxwell forever became his hero. However, he had great difficulty with quaternions and could not completely understand them.

A severely puzzled Heaviside abhorred the quaternion, since it linked together a scalar component and a vector component — or "apples and oranges," in his view. He excised the scalar component of the quaternion and excluded the hyperspatial characteristics of the directional components of the quaternion - producing his much more limited vectors. To unite magnetism and electromagnetics, the simplest complex aspect of the quaternion had to be restored by resorting to ordinary imaginary numbers. These machinations to the quaternion theory, however, discarded its unified field theory aspects. In short, Heaviside produced a very practical, highly restricted subset that was far easier to engineer -- but he threw out electrogravitation in the process. Further, Heaviside hated the potential because he did not truly understand it. He stated that it was "...mystical and should be murdered from the theory." He conditioned generations of physicists and engineers to erroneously believe that the potential was just a mathematical convenience, and had no actual physical realization. Indeed, most electrical physicists and electrical engineers are still of that erroneous persuasion today, even though the

Aharonov-Bohm work has long-since falsified such a position, both theoretically and experimentally.

The present author has previously pointed out that Maxwell's quaternion theory was in fact a unified theory of electromagnetics and gravitation, and that the scalar component of the quaternion was the electrogravitational part.<sup>27</sup> That part was discarded by Heaviside and Gibbs, and so electrogravitation no longer appears in the electromagnetics that resulted from Heaviside's and Gibbs' surgery on Maxwell's quaternion theory.

### Electrogravitation Was Also Excluded From General Relativity

The electrogravitational effect was also erroneously excluded from Einsteinian general relativity (GR). Einstein unwittingly narrowed his general relativity to only a subset of an unrestricted general relativity of curved spacetime. This GR error was an indirect result of the fundamental Heaviside/Gibbs omission error in classical electromagnetics.

Unfortunately, Einstein's view of electromagnetics approximated the classical Heaviside/Gibbs view. In classical EM theory, the electrical potentials - which actually were electrogravitational potentials - were already discarded as having no physical significance, and EM was considered mutually exclusive to G. Therefore, Einstein only considered the weak gravitational force due to the attraction of mass, in developing his general relativity theory of curved spacetime. The G-force is far weaker than the E-force; for two electrons, for example, the attractive G-force between them is on the order of only  $10^{-42}$  times as strong as their electrical E-force repulsion. Thus the G-force is incredibly smaller than the EM force. If only the weak G-force is considered for curving spacetime, then there will never be an *observable* curvature except in the immediate vicinity of a very large mass — such as on the surface of the sun or near a star.

Einstein reasoned that the laboratory and the observer/scientist/instrument would never be on the surface of the sun or near a star. Therefore, the local spacetime -- where the lab and the scientist/observer and his instruments are ~ would never be observably curved. The local spacetime of the observer would always be flat. Unfortunately Einstein overgeneralized his thought examination, and he stated one of his fundamental postulates of general relativity as "*The local spacetime is always flat.*" This is an erroneous overstatement. The postulate should be more correctly stated as follows: "*The local spacetime is always flat, whenever only the weak gravitational force is used for the agent of curvature, and the observer is not near a large collection of mass, such as a star.*"

The two statements of the postulate differ fundamentally. Einstein's overstatement of the postulate does not allow the far stronger EM force to be used for curvature; *in effect, his own postulate excluded electromagnetics from curvature unity with gravitation, in his own general relativity theory.*<sup>28</sup> On the other hand, the corrected statement of the postulate admits the following corollary: "*When a very strong force such as the electromagnetic force is used for the agent of curvature, the local spacetime may be curved, even though the observer is not near a large collection of mass, such as a star.*"<sup>29</sup>

Unfortunately, Einstein's modern followers have raised Einstein's theory to a dogma,<sup>30</sup> and have vigorously enforced his overstatement of the locally flat spacetime. In so doing, general relativity has been erroneously reduced to a theory that is basically not experimental: *A priori, if the local spacetime is flat, then there is no local experiment or local apparatus that involves or yields a curved local spacetime.*

## The Restricting of Quantum Mechanics

Today, quantum mechanics is our most successful physics theory. Its predictions - even the eery prediction of action at a distance - have been proven time and time again. However, quantum mechanics theory is known to have a formidable and serious difficulty: Try as they will, quantum physicists cannot find chaos in the theory. The theory is known to be wrong unless it possesses chaos (hidden order inside its statistics), yet the best efforts of quantum physicists have failed to find it.<sup>31</sup>

Again, any mathematical discipline is totally implied by its foundations postulates, and that is true of quantum mechanics. If the best efforts of the ablest physicists of the day cannot find chaos in the present QM, then one may suspect that the present QM does not contain chaos (hidden order). If that is true, then some present postulate - either explicit or implicit - of QM must exclude hidden order in quantum change. If so, the "real" QM needed is a superset that has at least two subsets: one (the missing) subset includes chaos, while the present subset excludes chaos. Our line of reasoning leads us to suspect that one or more of the postulates of the present QM theory is in error or overly restrictive, and must be changed to allow the missing chaotic subset.

Indeed, we may resolve this formidable QM problem quite simply by examining the *statistics* utilized by quantum mechanics. When QM was being formulated, scientists simply appropriated and included the thermodynamic statistics of Williard Gibbs (the same Gibbs who, together "with Heaviside, was responsible for the highly restricted vector subset of Maxwell's theory of electromagnetics.). Gibbs' statistics was totally based on the notion of the random variable. That is, the change (value assumed by the variable in a specific instance) is not only totally statistical, it is also *totally random*. Quantum physicists assumed a postulate of QM as follows: *quantum change is totally statistical*. However, because of the Gibbs statistics, in their application of the theory they *interpreted* that postulate in a much stronger fashion, as if it had been stated thusly: *Quantum change is totally statistical and randomized*. The actual postulate and the presently applied interpretation of it are in fact two quite different statements, and the interpretation is far more restrictive than actually implied by the postulate itself.

Further, the strong interpretation can readily be falsified. As an example, the macroscopic universe is simply a large integration (collection) of quantum changes. If these component quanta occur totally randomly, then no integration of them would yield the ordered, macroscopic world we all live in, because integrated randomness is still random. Therefore, since the ordered macroworld exists, the present QM strong interpretation of its own statistical quantum change postulate is invalid.

Also, if quantum change were totally random, then there would never be any possibility, *a priori*, of engineering it deterministically. On the other hand, if hidden order is admitted, there is at least *the possibility* of directly engineering physical quantum change itself.

Interestingly, the renowned physicist David Bohm has shown that a hidden variable theory of quantum mechanics can actually be constructed, whereby one could potentially engineer physical change.<sup>32</sup> It is well-known that experimental physics does not in any manner refute hidden variable theories. Because of the historical attachment of physics to the theory of the random variable, such contrary notions as chaos (hidden order) and hidden variables have simply been shuffled aside. The usual objection is Occam's razor; a theory must predict something different, or it is said to be unwarranted.<sup>33</sup> The Whittaker hidden variable approach certainly predicts many profoundly different engineerable effects and capabilities that mandate its full examination.

A much better, more valid interpretation of the quantum change postulate is as follows: *Quantum change is statistical, and may contain hidden order.*

The two interpretations differ sharply. In the new and less restrictive reinterpretation, one has two cases or subsets of QM as follows: (1) the subset where quantum change contains partial order, hence is *already chaotic*, and (2) the special subset where the internal order has vanished, leaving the statistics as Gibbs' random variable statistics, and exhibiting the present quantum mechanics without chaos. The first subset also has a special subset, where the statistics is totally deterministic, but information on the variables is lost.

The new interpretation is consistent with Bohm's hidden variable theory, and it is also consistent with the Schrodinger equation, which in the QM model already propagates the QM states forward in time with absolute determinism. It is not consistent with the Copenhagen interpretation, which only applies to the present QM subset. This can be seen as follows: If quantum change is engineerable by Whittaker hidden variables, then the inner contents of the engineered quantum change are known. This knowledge applies to the subset where QM change is engineered (the new subset), but not to the subset where all variables are random variables and hence not subject to engineering. Therefore the Copenhagen interpretation applies to the random quantum change subset, but not to chaotic (partially ordered) quantum change subset.

Happily, the reinterpretation of the postulate now allows a sufficient collection of the already-chaotic quantum change to produce the well-ordered, macroscopic universe we all live in. Also, the new interpretation is testable, and it can be falsified or verified in the laboratory.

### The End Result of Abbreviating Maxwell's Theory

In discarding the scalar component of the quaternion, Heaviside and Gibbs unwittingly discarded the unified EM/G portion of Maxwell's theory that arises when the translational/directional components of two interacting quaternions reduce to zero, but the scalar resultant remains and *infolds* a deterministic, dynamic structure that is a function of oppositive directional/translational components. In the infolding of EM energy inside a scalar potential, a *structured* scalar potential results, almost precisely as later shown by Whittaker but unnoticed by the scientific community. The simple vector equations produced by Heaviside and Gibbs captured only that subset of Maxwell's theory where EM and gravitation are mutually exclusive. In that subset, electromagnetic circuits and equipment will not ever, and *cannot* ever, produce gravitational or inertial effects in materials and equipments. Brutally, not a single one of those Heaviside/Gibbs equations ever appeared in a paper or book by James Clerk Maxwell, even though the severely restricted Heaviside/Gibbs interpretation is universally and erroneously taught in all Western universities as *Maxwell's theory*.

As a result of this artificial restriction of Maxwell's theory, Einstein also inadvertently restricted his theory of general relativity, forever preventing the unification of electromagnetics and relativity. He also essentially prevented the present restricted general relativity from ever becoming an experimental, engineerable science on the laboratory bench, since a hidden internalized electromagnetics causing a deterministically structured local spacetime curvature was excluded.

Quantum mechanics used only the Heaviside/Gibbs *externalized* electromagnetics and completely missed Maxwell's *internalized and ordered* electromagnetics enfolded inside a structured scalar potential. Accordingly, QM maintained its Gibbs statistics of quantum change, which is non-chaotic a priori. Quantum physicists by and large excluded Bohm's hidden variable theory,

which conceivably could have offered the potential of *engineering quantum change - engineering physical reality itself*.

Each of these three major scientific disciplines missed and excluded a subset of their disciplinary area, because they did not have the scalar component of the quaternion to incorporate. Further, they completely missed the significance of the Whittaker approach, which already shows how to apply and engineer the very subsets they had excluded.

What now exist in these areas are three separate, inconsistent disciplines. Each of them unwittingly excluded a vital part of its discipline, *which was the unified field part*. Ironically, then, present physicists continue to exert great effort to find the missing key to unification of the three disciplines, but find it hopeless, because *these special subsets are already contradictory to one another*, as is quite well-known to foundations physicists.

Obviously, if one wishes to unify physics, one must add back the unintentionally excluded, unifying subsets to each discipline. Interestingly, all three needed subsets turn out to be one and the same. So application of Whittaker's work to each one of the three disciplines produces the necessary superset of each, and these three supersets are unified in and on the common, added, Whittaker subset.

Further, the Whittaker unification linkage of the three disciplines is testable. It is engineerable. It works.

## NOTES AND REFERENCES

1. P. Graneau, *Ampere-Neumann Electrodynamics of Metals*, Nonantum, Massachusetts, Hadronic Press, 1985. See also P. Graneau and P.N. Graneau, "Electrodynamic Explosions in Liquids," *Appl. Phys. Lett.*, Vol. 46, 1985, p. 468; R. Azevedo, P. Graneau, P.N. Graneau, and C. Millet, "Powerful Water Plasma Explosions," *Phys. Lett* Vol. 117, 1986, p. 101.
2. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Physical Review*, Second Series, 115(3), Aug. 1, 1959, p. 458-491. This paper pointed out the primacy of the potentials. Instead of being *causative* agents, the force fields are actually *effects* generated from the potentials. This is in complete violation of both classical electromagnetics and classical dynamics, but it is absolutely required by quantum mechanics. For an extensive discussion of the Aharonov-Bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," *Rev. Mod. Phys.* 57(2), Apr. 1985.
3. See Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm Effect," *Physics Today*, 39(1), Jan. 1986, p. 17-20 for confirmation.
4. James Clerk Maxwell, *A Treatise on Electricity and Magnetism*, Oxford University Press, Oxford, 1873. The third edition is published by Dover, 1954.
5. Maxwell's true theory of electromagnetics is contained in some 200-odd *quaternion* equations, and is far more complex than the gross *vector* simplification developed by Heaviside and Gibbs after Maxwell's death. For a cogent argument about what might have been discovered much earlier in physics if quaternions had not been cast aside, see James D. Edmonds, Jr., "Quaternion Quantum Theory: New Physics or Number Mysticism?", *American Journal of Physics*, 42(3), Mar. 1974, p. 220-223. Just how much more powerful was Maxwell's quaternionic expression of EM theory than was Heaviside's (i.e., the modern) vector interpretation, was succinctly expressed by Josephs as follows: "*Hamilton's algebra of quaternions, unlike Heaviside's algebra of vectors, is not a mere abbreviated mode of expressing Cartesian analysis, but is an independent branch of mathematics with its own rules of operation and its own special theorems. A quaternion is, in fact, a generalized or hypercomplex number...*" (H.J. Josephs, "The Heaviside papers found at Paignton in 1957," *Electromagnetic Theory by Oliver Heaviside*, Including an account of Heaviside's unpublished notes for a fourth volume, and with a foreword by Sir Edmund Whittaker, Vol. III, Third Edition, Chelsea Publishing Co., New York, 1971, p. 660.)
6. See E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355; "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proceedings of the London Mathematical Society*, Series 2, Vol. 1, 1904, p. 367-37Z

Contrary to present EM theory, *if one wishes to study the primary electromagnetic, gravitational, and electrogravitational processes of nature, one applies Whittaker methodology*. Further, this methodology is completely engineerable and testable, and it drastically extends and perfects the present electromagnetics, general relativity, and quantum mechanics and unifies them into a unified, testable theory.

7. In the modern view, it is trapped energy that is gravitational, mass being viewed as simply such trapped energy. We point out that Einstein's formula  $E = mc^2$  actually is an expression for mass in terms of its trapped *electromagnetic* energy. Thus we extend the

modern view by stating that, to first order, Newtonian gravitational attraction is due to the attraction of *spatially entrapped electromagnetic energy*. Since the electromagnetic scalar potentials represent just such spatially entrapped EM energy, then they hold a special significance gravitationally.

8. This assertion can be tested. At the nodal points of the standing potential wave, the rate of flow of time is normal. At nonzero points along the wave, however, the local rate of flow of local time varies from normal. After a proper-time interval for the observer at the nodal point, normal clocks and watches at different non-nodal points along the wave will appreciably vary in their time reading. Initially synchronized clocks will thus be found to disagree, if placed in different positions in the Whittaker wave and allowed to remain for a test period. In the past, various inventors have anecdotally demonstrated this effect. As an example, see David Jones, "Israel's Secret Weapon?", *Vancouver Sun Times*, Dec. 17, 1977, p. 17.
9. V.K. Ignatovich, "The remarkable capabilities of recursive relations," *American Journal of Physics*, 57(10), Oct. 1989, p. 873-878.
10. Richard W. Ziolkowski, "Localized transmission of wave energy," *Proc. SPEE, Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts*, Jan. 1989, p. 396-397.
11. An *acoustic missile* is essentially a slug of acoustic energy that holds together as it travels, striking and damaging or destroying a target. An *electromagnetic missile* is a slug of EM energy that holds together as it travels to a target and strikes it.
12. A.D. Sakharov, "Vacuum Quantum Fluctuations in Curved Space and the Theory of Gravitation," *Sov. Phys. Dokl.*, Vol. 12, 1968, p. 1040. See also the related discussion in Misner, Thorne and Wheeler, *Gravitation*, 1973, p. 426.
13. Note that this assigns an *internal structure* to a gravitational potential.
14. A.D. Sakharov, *Theor. Math. Phys.*, Vol. 23, 1975, p. 435.
15. K. Akama et al, *Prog. Theor. Phys.*, Vol. 60, 1978, p. 868.
16. B. Hasslacher and E. Mottolo, *Phys. Lett*, Vol. 95B, 1980, p. 237.
17. A Zee, *Phys. Rev. Lett.*, Vol. 42, 1979, p. 417.
18. D. Amati and G. Veneziano, *Phys. Lett.*, Vol. 105B, 1981, p. 358; S. Yoshimoto, *Prog. Theor. Phys.*, Vol. 78, 1987, p. 435.
19. S. Adler, *Rev. Mod. Phys.*, Vol. 54, 1982, p. 729.
20. H.E. Futhoff, "Ground State of Hydrogen as a Zero-Point-Fluctuation-Determined State," *Phys. Rev. D.*, 35(10), May 15, 1987, p. 3266-3269.
21. H.E. Puthoff, "Gravity as a Zero-Point-Fluctuation Force," *Phys. Rev. A*, 39(5), Mar. 1, 1989, p. 2333-2342. See also H.E. Puthoff, "Source of Vacuum electromagnetic Zero-Point Energy," *Phys. Rev. A.*, 40(9), Nov. 1, 1989, p. 4857-4862. Changing the vacuum potential constitutes a fluctuation directly in and of the zero-point energy of vacuum, and hence, by Puthoffs mechanism, it does indeed induce a gravitational effect. At the level



of the vacuum virtual particle flux exchange with the charged nucleus, producing an electromagnetic change also produces a gravitational change, and vice-versa.

22. Puthoff, *Phys. Rev. D.*, 35(10), May 15, 1987, p. 3266-3269.
23. Nikola Tesla, *Colorado Springs Notes 1899-1900*, Nolit, Beograd, Yugoslavia, 1978, p. 61-62.
24. E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372.
25. The potential for weaponization of the Whittaker work should be obvious.
26. Toward the end of his life Heaviside lived as a recluse in a small garret apartment, and may have returned again to his struggle with quaternions. In the 1950's handwritten notes of a theory of gravitation, written in quaternion mathematics, were found beneath the floor boards of his tiny study.
27. T.E. Bearden, "Maxwell's Original Quaternion Theory Was a Unified Field Theory of Electromagnetics and Electrogravitation," *Proceedings*, International Tesla Society Symposium, Colorado Springs, Colorado, July 1988. See also T.E. Bearden, "Maxwell's Lost Unified Field Theory of Electromagnetics and Gravitation," *Proceedings*, PACE Third International New Energy Technology Symposium, June 25-28, 1988 at Maison du Citoyen, Hull (Ottawa), Canada, 1988.
28. Ironically, Einstein then spent the remainder of his life, desperately trying to unify electromagnetics and gravitation in his theory of general relativity, never realizing that his own overstatement of his "flat local spacetime" postulate precluded his success and foredoomed all his efforts to failure.
29. To appreciate just what can actually be done with local spacetime curvature, see E.B. Smetanin, "Electromagnetic field in a space with curvature - new solutions," *Soviet Physics Journal*, 25(2), Feb. 1982, p. 107-111. In this paper, a solution to the problem stated in the title is obtained, which may be regarded as a classical model of a charged particle that has both a magnetic moment and a nonzero magnetic charge density. Interaction with spacetime curvature can disrupt the gauge invariance of the EM field, and it can also re-establish invariance in an initially noninvariant theory. Notice that, if we curve the local spacetime, Smetanin's theoretical phenomena — none of which is adequately described in the conventional electromagnetics theory - may apply. Specifically, *the charged vacuum itself - the local curved spacetime* - can furnish a nonzero magnetic charge density to the charged particles in the system. The local spacetime becomes a source of energy, which is added to the exposed system. Local violation of energy conservation can occur in the system, because it is now an open system containing a hidden vacuum energy source.
30. For a detailed expose of the scientific suppression used to uphold the present GR, written by an inside scientist of excellent ability, and one with over 100 published papers in the literature, see Rugero Maria Santilli, *Ethical Probe on Einstein's Followers in the USA: An Insider's View*, Alpha Publishing, POB 82, Newtonville, Massachusetts 02160, 1984.

31. For a discussion of the missing chaos in quantum mechanics, see Robert Pool, "Quantum Chaos: Enigma Wrapped in a Mystery," *Science*, 243(4893), Feb. 17, 1989, p. 893-895. For a more technical discussion see P.V. Elyutin, "The quantum chaos problem," *Sov. Phys. Usp.* 31(7), July 1988, p. 597-622.
  
32. For an entry point into the literature of hidden variable theory, see *Quantum Implications: Essays in Honour of David Bohm*, B. J. Hiley and F. David Peat, Eds., Routledge & Kegan Paul, London & New York, 1987.
  
33. However, even if it predicts something new and is warranted, it still may not be adopted. An example is the continuing reluctance of physicists to reformulate EM theory, stressing the primacy of the potential and the fact that not the force field but only the *potential* for the force field exists in the vacuum. Even more so, it is well-known that detection is actually binary, and we throw away precisely half of almost every detection our instruments make. Cf Richard Kidd et al, "Evolution of the modern photon," *American Journal of Physics*, 57(1), Jan. 1989, p. 27-35. Generally in every electromagnetic interaction of our instruments, two photons are produced: one a time-forward photon, and the other a time-reversed photon. Our detectors essentially measure the time-forward photon half, not the time-reversed photon (antiphoton) half, the antiphoton half produces a slight recoil force (Newton's third law reaction force) in the mass (nuclei) of the instrument, which we ignore. Also, we continue to ignore the evidence that the photon and antiphoton are not identical. In a pumped phase conjugate mirror, for example, the emission of a normal photon from the mirror material results in a recoil of the mirror; the emission of an antiphoton by the mirror material, however, does not result in recoil of the mirror. Physics is still not consistent, as is well-known to foundations researchers, but is generally not accented to university students.



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(12) **United States Patent**  
**Patrick et al.**

(10) **Patent No.:** **US 6,362,718 B1**  
(45) **Date of Patent:** **Mar. 26, 2002**

(54) **MOTIONLESS ELECTROMAGNETIC GENERATOR**

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(21) Appl. No.: **09/656,313**

(22) Filed: **Sep. 6, 2000**

(51) **Int. Cl.**<sup>7</sup> ..... **H01F 27/24**

(52) **U.S. Cl.** ..... **336/214**

(58) **Field of Search** ..... 363/16, 24, 25, 363/26, 56.06, 56.08, 133, 134; 336/15, 110, 155, 177, 180, 213, 214, 221, 222

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,153,378 A	4/1939	Kramer	171/95
2,892,155 A	6/1959	Radus et al.	324/117
3,079,535 A	2/1963	Schultz	317/201
3,165,723 A	1/1965	Radus	340/174
3,228,013 A	1/1966	Olson et al.	340/174
3,254,268 A	5/1966	Radus et al.	317/14
3,316,514 A	4/1967	Radus et al.	335/291
3,368,141 A	2/1968	Subieta-Garron	323/44
3,391,358 A	7/1968	Bratkowski et al.	335/21
3,453,876 A	7/1969	Radus	73/141
3,517,300 A *	6/1970	McMurray	
3,569,947 A	3/1971	Radus	340/174
3,599,074 A *	8/1971	Adams	
4,006,401 A	2/1977	de Rivas	323/92
4,077,001 A	2/1978	Richardson	323/92
4,366,532 A	12/1982	Rosa et al.	363/69
4,482,945 A	11/1984	Wolf et al.	363/129
4,554,524 A	11/1985	Radus	337/3

4,853,668 A	8/1989	Bloom	336/214
4,864,478 A	9/1989	Bloom	363/16
4,904,926 A	2/1990	Pasichinskyj	323/362
5,011,821 A	4/1991	McCullough	505/1
5,221,892 A	6/1993	Sullivan et al.	323/362
5,245,521 A *	9/1993	Spreen	363/37
5,327,015 A	7/1994	Hacket	505/211
5,335,163 A	8/1994	Seiersen	363/126
5,694,030 A *	12/1997	Sato et al.	323/282

**OTHER PUBLICATIONS**

Raymond J. Radus, "Permanent-Magnet Circuit using a 'Flux-Transfer' Principle," Engineers' Digest, 24(1-6) Jan.-Jun. 1963, p. 86.

Robert O'Handley, Modern Magnetic Materials, Principles and Applications, John Wiley & Sons, Inc., 2000, pp. 456-468.

Robert C. Weast, Editor, CRC Handbook of Chemistry and Physics, 1978-1979, p. B-50.

Honeywell.com web site, "amorphous metals".

\* cited by examiner

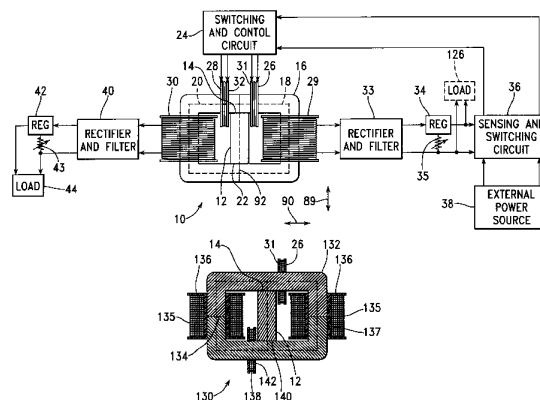
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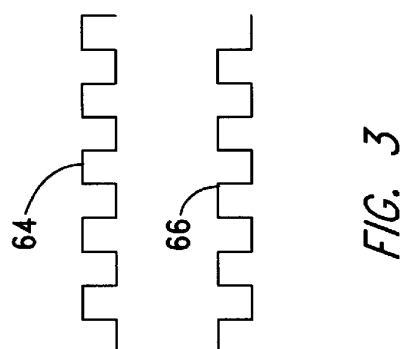
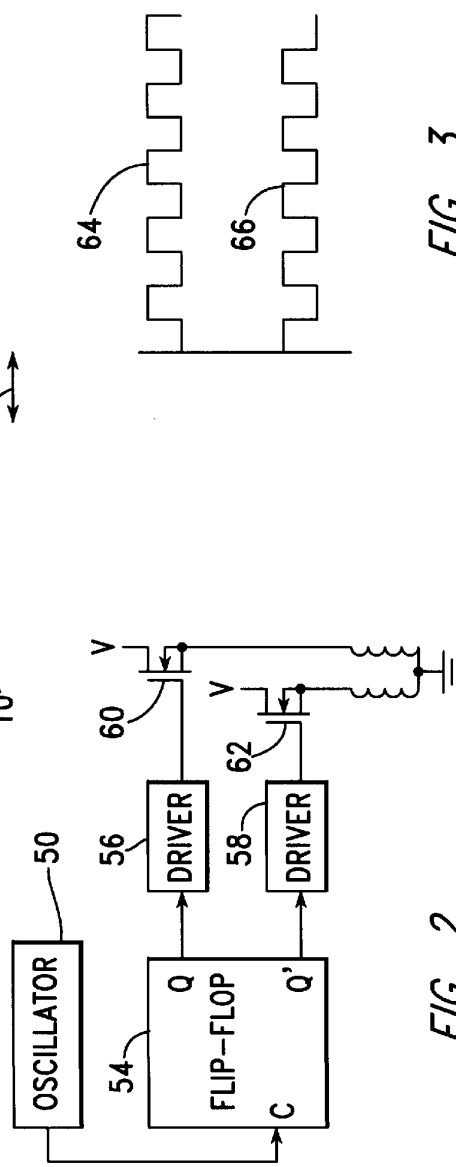
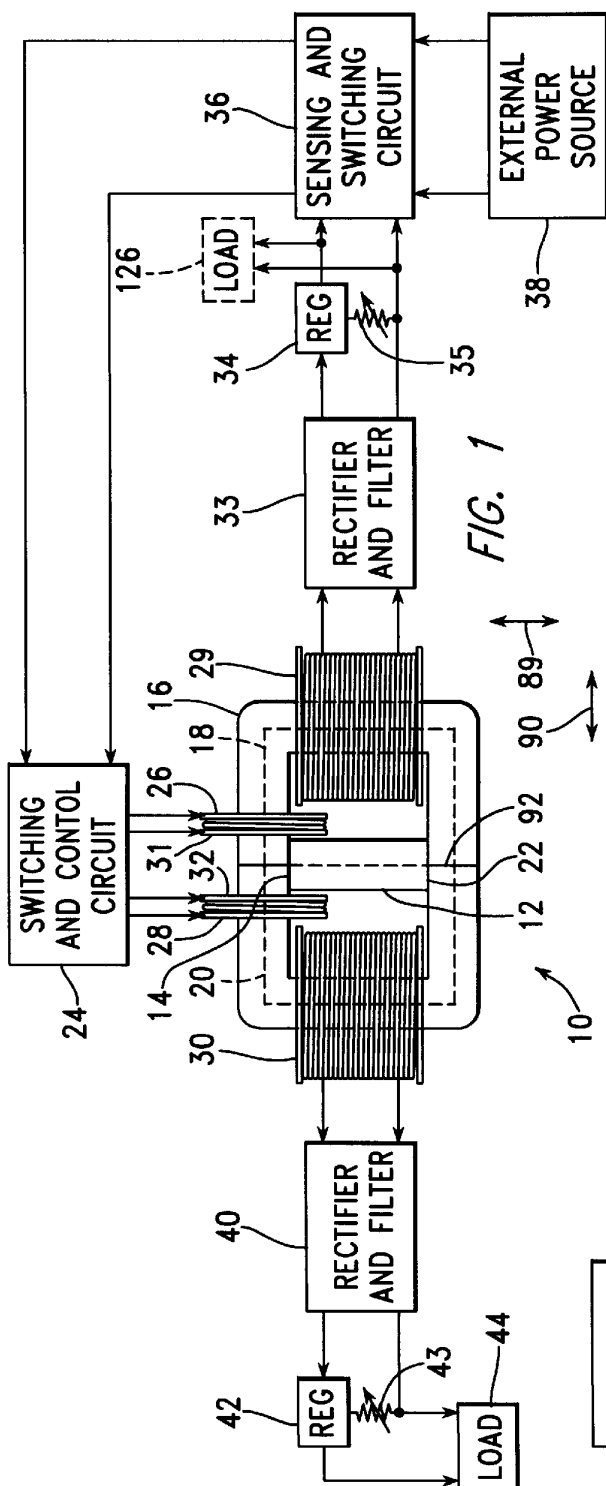
(74) *Attorney, Agent, or Firm*—Norman Friedland

(57) **ABSTRACT**

An electromagnetic generator without moving parts includes a permanent magnet and a magnetic core including first and second magnetic paths. A first input coil and a first output coil extend around portions of the first magnetic path, while a second input coil and a second output coil extend around portions of the second magnetic path. The input coils are alternatively pulsed to provide induced current pulses in the output coils. Driving electrical current through each of the input coils reduces a level of flux from the permanent magnet within the magnet path around which the input coil extends. In an alternative embodiment of an electromagnetic generator, the magnetic core includes annular spaced-apart plates, with posts and permanent magnets extending in an alternating fashion between the plates. An output coil extends around each of these posts. Input coils extending around portions of the plates are pulsed to cause the induction of current within the output coils.

**29 Claims, 5 Drawing Sheets**





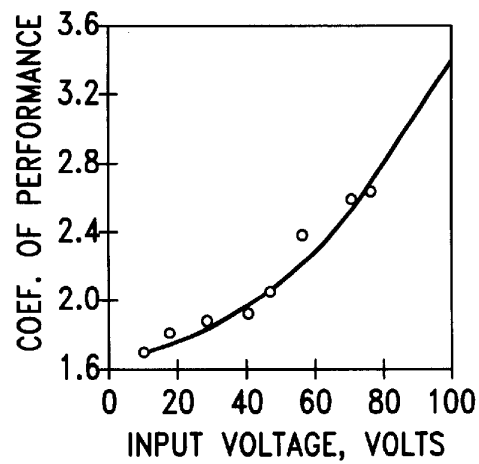
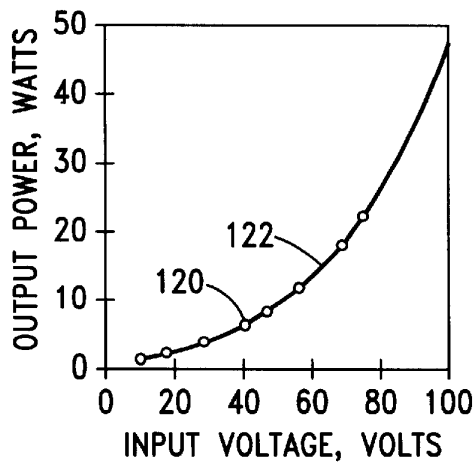
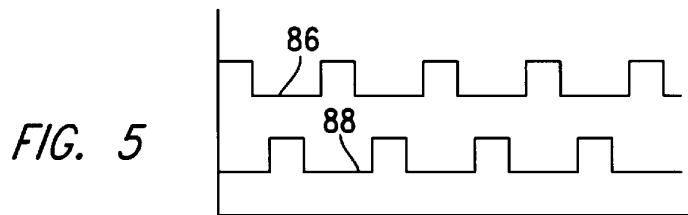
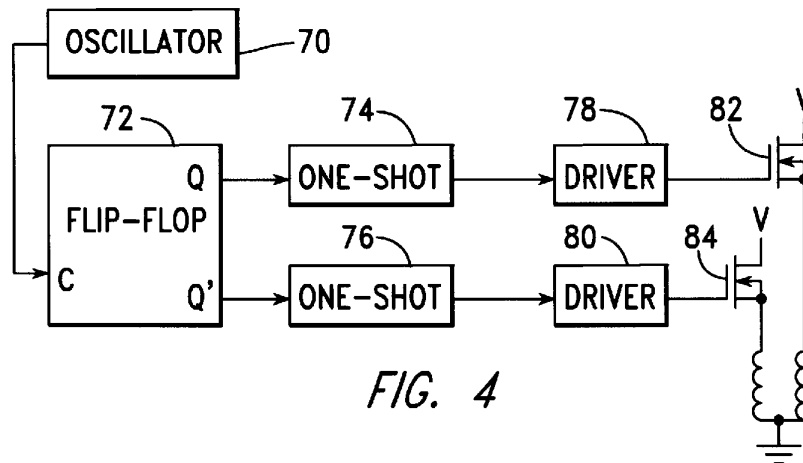


FIG. 6A

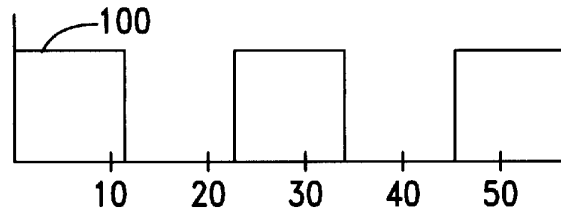


FIG. 6B

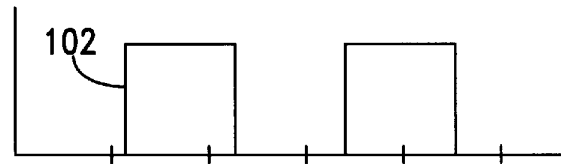


FIG. 6C

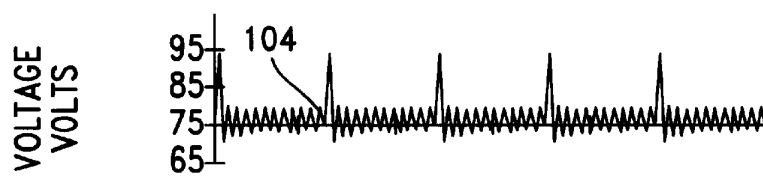


FIG. 6D

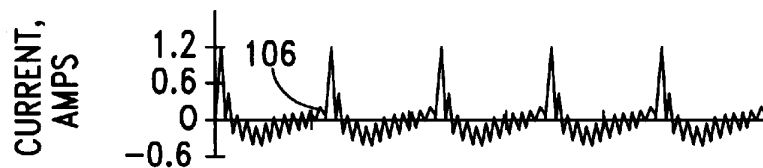


FIG. 6E

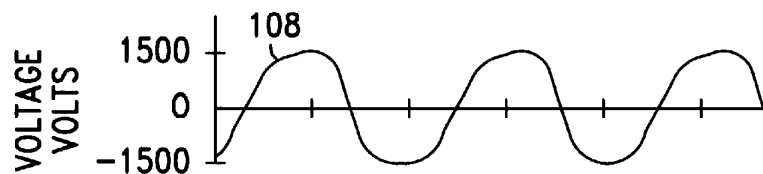


FIG. 6F

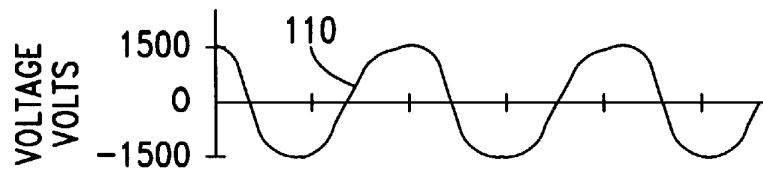


FIG. 6G

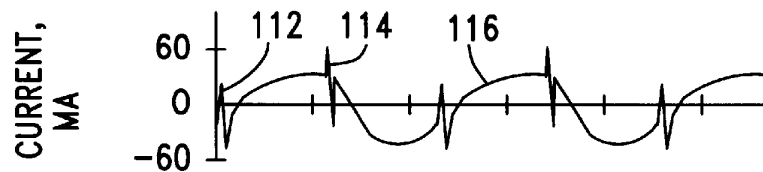
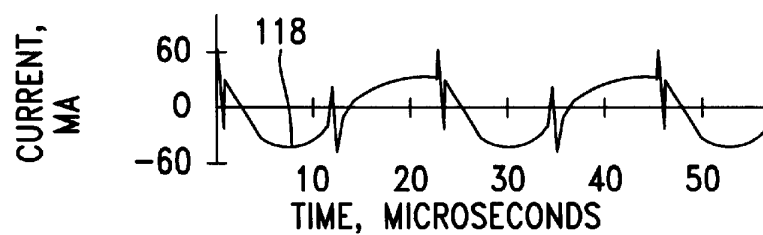
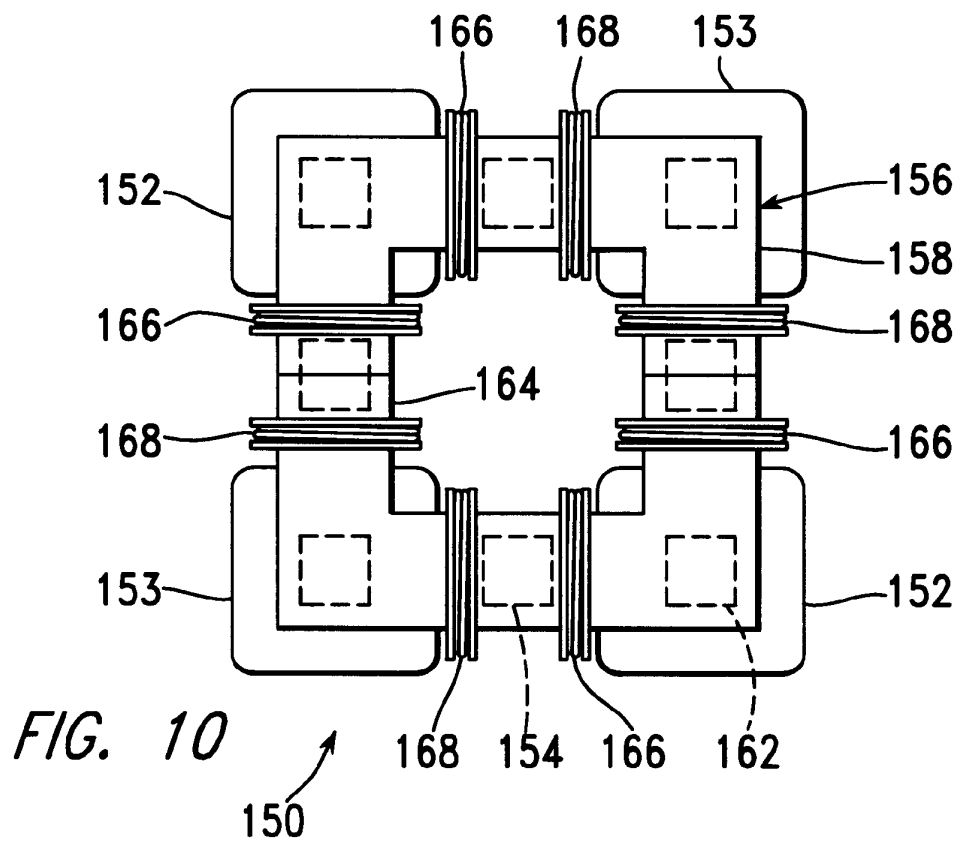
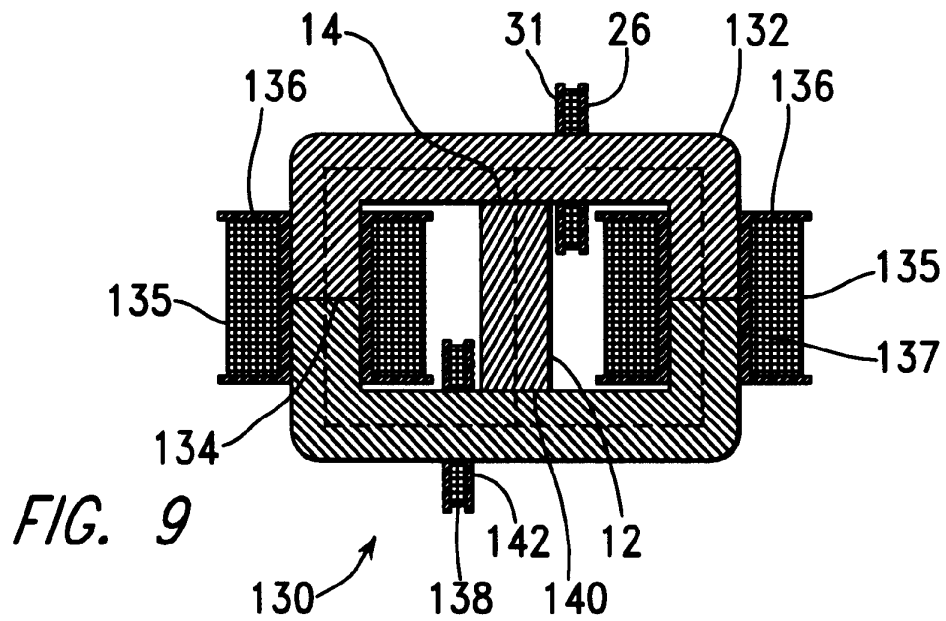


FIG. 6H





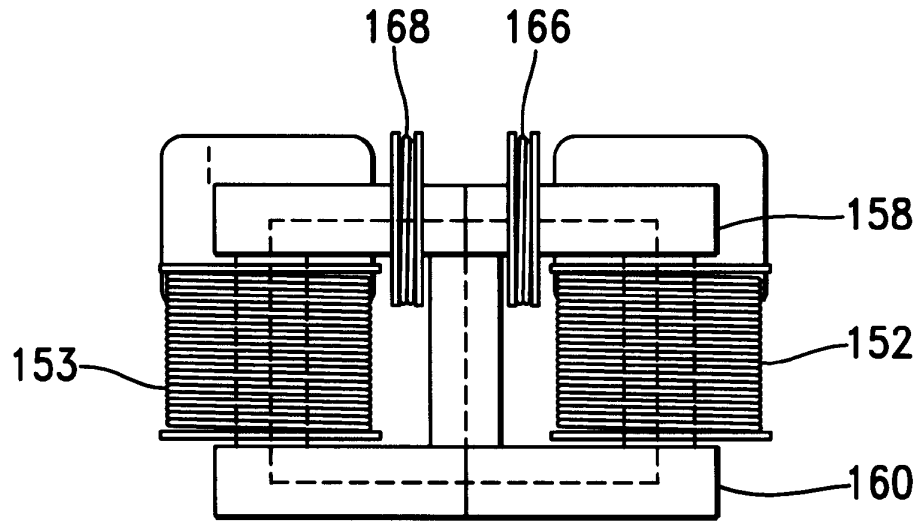


FIG. 11

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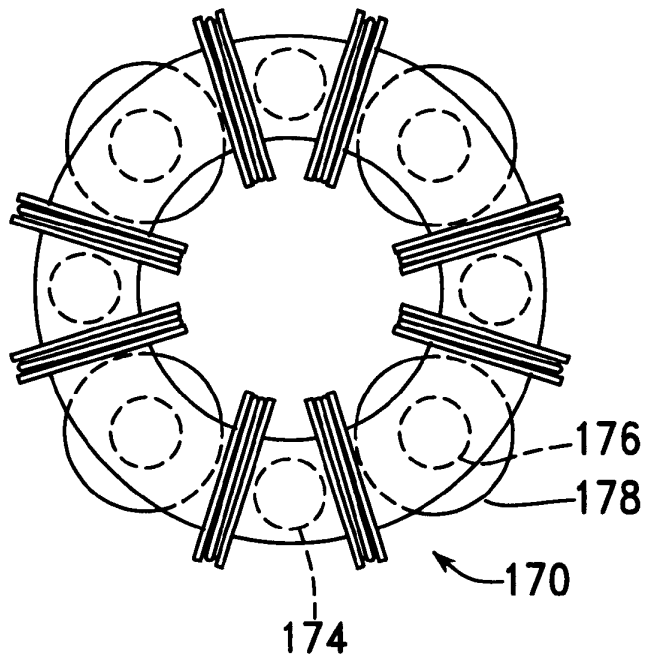


FIG. 12



# MOTIONLESS ELECTROMAGNETIC GENERATOR

## BACKGROUND INFORMATION

### 1. Field of Invention

This invention relates to a magnetic generator used to produce electrical power without moving parts, and, more particularly, to such a device having a capability, when operating, of producing electrical power without an external application of input power through input coils.

### 2. Description of the Related Art

The patent literature describes a number of magnetic generators, each of which includes a permanent magnet, two magnetic paths external to the permanent magnet, each of which extends between the opposite poles of the permanent magnet, switching means for causing magnetic flux to flow alternately along each of the two magnetic paths, and one or more output coils in which current is induced to flow by means of changes in the magnetic field within the device. These devices operate in accordance with an extension of Faraday's Law, indicating that an electrical current is induced within a conductor within a changing magnetic field, even if the source of the magnetic field is stationary.

A method for switching magnetic flux to flow predominantly along either of two magnetic paths between opposite poles of a permanent magnet is described as a "flux transfer" principle by R. J. Ratus in *Engineer's Digest*, Jul. 23, 1963. This principle is used to exert a powerful magnetic force at one end of both the north and south poles and a very low force at the other end, without being used in the construction of a magnetic generator. This effect can be caused mechanically, by keeper movement, or electrically, by driving electrical current through one or more control windings extending around elongated versions of the pole pieces 14. Several devices using this effect are described in U.S. Pat. Nos. 3,165,723, 3,228,013, and 3,316,514, which are incorporated herein by reference.

Another step toward the development of a magnetic generator is described in U.S. Pat. No. 3,368,141, which is incorporated herein by reference, as a device including a permanent magnet in combination with a transformer having first and second windings about a core, with two paths for magnetic flux leading from each pole of the permanent magnet to either end of the core, so that, when an alternating current induces magnetic flux direction changes in the core, the magnetic flux from the permanent magnet is automatically directed through the path which corresponds with the direction taken by the magnetic flux through the core due to the current. In this way, the magnetic flux is intensified. This device can be used to improve the power factor of a typically inductively loaded alternating current circuit.

Other patents describe magnetic generators in which electrical current from one or more output coils is described as being made available to drive a load, in the more conventional manner of a generator. For example, U.S. Pat. No. 4,006,401, which is incorporated herein by reference, describes an electromagnetic generator including permanent magnet and a core member, in which the magnetic flux flowing from the magnet in the core member is rapidly alternated by switching to generate an alternating current in a winding on the core member. The device includes a permanent magnet and two separate magnetic flux circuit paths between the north and south poles of the magnet. Each of the circuit paths includes two switching means for alternately opening and closing the circuit paths, generating an alternating current in a winding on the core member. Each

of the switching means includes a switching magnetic circuit intersecting the circuit path, with the switching magnetic circuit having a coil through which current is driven to induce magnetic flux to saturate the circuit path extending to the permanent magnet. Power to drive these coils is derived directly from the output of a continuously applied alternating current source. What is needed is an electromagnetic generator not requiring the application of such a current source.

U.S. Pat. No. 4,077,001, which is incorporated herein by reference, describes a magnetic generator, or dc/dc converter, comprising a permanent magnet having spaced-apart poles and a permanent magnetic field extending between the poles of the magnet. A variable-reluctance core is disposed in the field in fixed relation to the magnet and the reluctance of the core is varied to cause the pattern of lines of force of the magnetic field to shift. An output conductor is disposed in the field in fixed relation to the magnet and is positioned to be cut by the shifting lines of permanent magnetic force so that a voltage is induced in the conductor. The magnetic flux is switched between alternate paths by means of switching coils extending around portions of the core, with the flow of current being alternated between these switching coils by means of a pair of transistors driven by the outputs of a flip-flop. The input to the flip flop is driven by an adjustable frequency oscillator. Power for this drive circuit is supplied through an additional, separate power source. What is needed is a magnetic generator not requiring the application of such a power source.

U.S. Pat. No. 4,904,926, which is incorporated herein by reference, describes another magnetic generator using the motion of a magnetic field. The device includes an electrical winding defining a magnetically conductive zone having bases at each end, the winding including elements for the removing of an induced current therefrom. The generator further includes two pole magnets, each having a first and a second pole, each first pole in magnetic communication with one base of the magnetically conductive zone. The generator further includes a third pole magnet, the third pole magnet oriented intermediately of the first poles of the two pole electromagnets, the third pole magnet having a magnetic axis substantially transverse to an axis of the magnetically conductive zone, the third magnet having a pole nearest to the conductive zone and in magnetic attractive relationship to the first poles of the two pole electromagnets, in which the first poles thereof are like poles. Also included in the generator are elements, in the form of windings, for cyclically reversing the magnetic polarities of the electromagnets. These reversing means, through a cyclical change in the magnetic polarities of the electromagnets, cause the magnetic flux lines associated with the magnetic attractive relationship between the first poles of the electromagnets and the nearest pole of the third magnet to correspondingly reverse, causing a wiping effect across the magnetically conductive zone, as lines of magnetic flux swing between respective first poles of the two electromagnets, thereby inducing electron movement within the output windings and thus generating a flow of current within the output windings.

U.S. Pat. No. 5,221,892, which is incorporated herein by reference, describes a magnetic generator in the form of a direct current flux compression transformer including a magnetic envelope having poles defining a magnetic axis and characterized by a pattern of magnetic flux lines in polar symmetry about the axis. The magnetic flux lines are spatially displaced relative to the magnetic envelope using control elements which are mechanically stationary relative to the core. Further provided are inductive elements which

are also mechanically stationary relative to the magnetic envelope. Spatial displacement of the flux relative to the inductive elements causes a flow of electrical current. Further provided are magnetic flux valves which provide for the varying of the magnetic reluctance to create a time domain pattern of respectively enhanced and decreased magnetic reluctance across the magnetic valves, and, thereby, across the inductive elements.

Other patents describe devices using superconductive elements to cause movement of the magnetic flux. These devices operate in accordance with the Meissner effect, which describes the expulsion of magnetic flux from the interior of a superconducting structure as the structure undergoes the transition to a superconducting phase. For example, U.S. Pat. No. 5,011,821, which is incorporated herein by reference, describes an electric power generating device including a bundle of conductors which are placed in a magnetic field generated by north and south pole pieces of a permanent magnet. The magnetic field is shifted back and forth through the bundle of conductors by a pair of thin films of superconductive material. One of the thin films is placed in the superconducting state while the other thin film is in a non-superconducting state. As the states are cyclically reversed between the two films, the magnetic field is deflected back and forth through the bundle of conductors.

U.S. Pat. No. 5,327,015, which is incorporated herein by reference, describes an apparatus for producing an electrical impulse comprising a tube made of superconducting material, a source of magnetic flux mounted about one end of the tube, a means, such as a coil, for intercepting the flux mounted along the tube, and a means for changing the temperature of the superconductor mounted about the tube. As the tube is progressively made superconducting, the magnetic field is trapped within the tube, creating an electrical impulse in the means for intercepting. A reversal of the superconducting state produces a second pulse.

None of the patented devices described above use a portion of the electrical power generated within the device to power the reversing means used to change the path of magnetic flux. Thus, like conventional rotary generators, these devices require a steady input of power, which may be in the form of electrical power driving the reversing means of one of these magnetic generators or the torque driving the rotor of a conventional rotary generator. Yet, the essential function of the magnetic portion of an electrical generator is simply to switch magnetic fields in accordance with precise timing. In most conventional applications of magnetic generators, the voltage is switched across coils, creating magnetic fields in the coils which are used to override the fields of permanent magnets, so that a substantial amount of power must be furnished to the generator to power the switching means, reducing the efficiency of the generator.

Recent advances in magnetic material, which have particularly been described by Robert C. O'Handley in *Modern Magnetic Materials, Principles and Applications*, John Wiley & Sons, New York, pp. 456-468, provide nanocrystalline magnetic alloys, which are particularly well suited forth rapid switching of magnetic flux. These alloys are primarily composed of crystalline grains, or crystallites, each of which has at least one dimension of a few nanometers. Nanocrystalline materials may be made by heat-treating amorphous alloys which form precursors for the nanocrystalline materials, to which insoluble elements, such as copper, are added to promote massive nucleation, and to which stable, refractory alloying materials, such as niobium or tantalum carbide are added to inhibit grain growth. Most of the volume of nanocrystalline alloys is composed of

randomly distributed crystallites having dimensions of about 2-40 nm. These crystallites are nucleated and grown from an amorphous phase, with insoluble elements being rejected during the process of crystallite growth. In magnetic terms, each crystallite is a single-domain particle. The remaining volume of nanocrystalline alloys is made up of an amorphous phase in the form of grain boundaries having a thickness of about 1 nm.

Magnetic materials having particularly useful properties are formed from an amorphous Co-Nb-B (cobalt-niobium-boron) alloy having near-zero magnetostriction and relatively strong magnetization, as well as good mechanical strength and corrosion resistance. A process of annealing this material can be varied to change the size of crystallites formed in the material, with a resulting strong effect on DC coercivity. The precipitation of nanocrystallites also enhances AC performance of the otherwise amorphous alloys.

Other magnetic materials are formed using iron-rich amorphous and nanocrystalline alloys, which generally show larger magnetization than the alloys based on cobalt. Such materials are, for example, Fe-B-Si-Nb-Cu (iron-boron-silicon-niobium-copper) alloys. While the permeability of iron-rich amorphous alloys is limited by their relatively large levels of magnetostriction, the formation of a nanocrystalline material from such an amorphous alloy dramatically reduces this level of magnetostriction, favoring easy magnetization.

Advances have also been made in the development of materials for permanent magnets, particularly in the development of materials including rare earth elements. Such materials include samarium cobalt, SmCo<sub>5</sub>, which is used to form a permanent magnet material having the highest resistance to demagnetization of any known material. Other magnetic materials are made, for example, using combinations of iron, neodymium, and boron.

#### SUMMARY OF THE INVENTION

It is a first objective of the present invention to provide a magnetic generator which a need for an external power source during operation of the generator is eliminated.

It is a second objective of the present invention to provide a magnetic generator in which a magnetic flux path is changed without a need to overpower a magnetic field to change its direction.

It is a third objective of the present invention to provide a magnetic generator in which the generation of electricity is accomplished without moving parts.

In the apparatus of the present invention, the path of the magnetic flux from a permanent magnet is switched in a manner not requiring the overpowering of the magnetic fields. Furthermore, a process of self-initiated iterative switching is used to switch the magnetic flux from the permanent magnet between alternate magnetic paths within the apparatus, with the power to operate the iterative switching being provided through a control circuit consisting of components known to use low levels of power. With self-switching, a need for an external power source during operation of the generator is eliminated, with a separate power source, such as a battery, being used only for a very short time during start-up of the generator.

According to a first aspect of the present invention, an electromagnetic generator is provided, including a permanent magnet, a magnetic core, first and second input coils, first and second output coils, and a switching circuit. The permanent magnet has magnetic poles at opposite ends. The

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magnetic core includes a first magnetic path, around which the first input and output coils extend, and a second magnetic path, around which the second input and output coils extend, between opposite ends of the permanent magnet. The switching circuit drives electrical current alternately through the first and second input coils. The electrical current driven through the first input coil causes the first input coil to produce a magnetic field opposing a concentration of magnetic flux from the permanent magnet within the first magnetic path. The electrical current driven through the second input coil causes the second input coil to produce a magnetic field opposing a concentration of magnetic flux from the permanent magnet within the second magnetic path.

According to another aspect of the present invention, an electromagnetic generator is provided, including a magnetic core, a plurality of permanent magnets, first and second pluralities of input coils, a plurality of output coils, and a switching circuit. The magnetic core includes a pair of spaced-apart plates, each of which has a central aperture, and first and second pluralities of posts extending between the spaced-apart plates. The permanent magnets each extend between the pair of spaced apart plates. Each permanent magnet has magnetic poles at opposite ends, with the magnetic fields of all the permanent magnets being aligned to extend in a common direction. Each input coil extends around a portion of a plate within the spaced-apart plates, between a post and a permanent magnet. An output coil extends around each post. The switching circuit drives electrical current alternately through the first and second pluralities of input coils. Electrical current driven through each input coil in the first plurality of input coils causes an increase in magnetic flux within each post within the first plurality of posts from permanent magnets on each side of the post and a decrease in magnetic flux within each post within the second plurality of posts from permanent magnets on each side of the post. Electrical current driven through each input coil in the second plurality of input coils causes a decrease in magnetic flux within each post within the first plurality of posts from permanent magnets on each side of the post and an increase in magnetic flux within each post within the second plurality of posts from permanent magnets on each side of the post.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partly schematic front elevation of a magnetic generator and associated electrical circuits built in accordance with a first version of the first embodiment of the present invention;

FIG. 2 is a schematic view of a first version of a switching and control circuit within the associated electrical circuits of FIG. 1;

FIG. 3 is a graphical view of drive signals produced within the circuit of FIG. 2;

FIG. 4 is a schematic view of a second version of a switching and control circuit within the associated electrical circuits of FIG. 1;

FIG. 5 is a graphical view of drive signals produced within the circuit of FIG. 3;

FIG. 6A is a graphical view of a first drive signal within the apparatus of FIG. 1;

FIG. 6B is a graphical view of a second drive signal within the apparatus of FIG. 1;

FIG. 6C is a graphical view of an input voltage signal within the apparatus of FIG. 1;

FIG. 6D is a graphical view of an input current signal within the apparatus of FIG. 1;

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FIG. 6E is a graphical view of a first output voltage signal within the apparatus of FIG. 1;

FIG. 6F is a graphical view of a second output voltage signal within the apparatus of FIG. 1;

FIG. 6G is a graphical view of a first output current signal within the apparatus of FIG. 1;

FIG. 6H is a graphical view of a second output current signal within the apparatus of FIG. 1;

FIG. 7 is a graphical view of output power measured within the apparatus of FIG. 1, as a function of input voltage;

FIG. 8 is a graphical view of a coefficient of performance, calculated from measurements within the apparatus of FIG. 1, as a function of input voltage;

FIG. 9 is a cross-sectional elevation of a second version of the first embodiment of the present invention;

FIG. 10 is a top view of a magnetic generator built in accordance with a first version of a second embodiment of the present invention;

FIG. 11 is a front elevation of the magnetic generator of FIG. 10; and

FIG. 12 is a top view of a magnetic generator built in accordance with a second version of the second embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a partly schematic front elevation of an electromagnetic generator 10, built in accordance with a first embodiment of the present invention to include a permanent magnet 12 to supply input lines of magnetic flux moving from the north pole 14 of the magnet 12 outward into magnetic flux path core material 16. The flux path core material 16 is configured to form a right magnetic path 18 and a left magnetic path 20, both of which extend externally between the north pole 14 and the south pole 22 of the magnet 12. The electromagnetic generator 10 is driven by means of a switching and control circuit 24, which alternately drives electrical current through a right input coil 26 and a left input coil 28. These input coils 26, 28 each extend around a portion of the core material 16, with the right input coil 26 surrounding a portion of the right magnetic path 18 and with the left input coil 28 surrounding a portion of the left magnetic path 20. A right output coil 29 also surrounds a portion of the right magnetic path 18, while a left output coil 30 surrounds a portion of the left magnetic path 20.

In accordance with a preferred version of the present invention, the switching and control circuit 24 and the input coils 26, 28 are arranged so that, when the right input coil 26 is energized, a north magnetic pole is present at its left end 31, the end closest to the north pole 14 of the permanent magnet 12, and so that, when the left input coil 28 is energized, a north magnetic pole is present at its right end 32, which is also the end closest to the north pole 14 of the permanent magnet 12. Thus, when the right input coil 26 is magnetized, magnetic flux from the permanent magnet 12 is repelled from extending through the right input coil 26. Similarly, when the left input coil 28 is magnetized, magnetic flux from the permanent magnet 12 is repelled from extending through the left input coil 28.

Thus, it is seen that driving electrical current through the right input coil 26 opposes a concentration of flux from the permanent magnet 12 within the right magnetic path 18, causing at least some of this flux to be transferred to the left magnetic path 20. On the other hand, driving electrical current through the left input coil 28 opposes a concentration

of flux from the permanent magnet 12 within the left magnetic path 20, causing at least some of this flux to be transferred to the right magnetic path 18.

While in the example of FIG. 1, the input coils 26, 28 are placed on either side of the north pole of the permanent magnet 12, being arranged along a portion of the core 16 extending from the north pole of the permanent magnet 12, it is understood that the input coils 26, 28 could as easily be alternately placed on either side of the south pole of the permanent magnet 12, being arranged along a portion of the core 16 extending from the south pole of the permanent magnet 12, with the input coils 26, 28 being wired to form, when energized, magnetic fields having south poles directed toward the south pole of the permanent magnet 12. In general, the input coils 26, 28 are arranged along the magnetic core on either side of an end of the permanent magnet forming a first pole, such as a north pole, with the input coils being arranged to produce magnetic fields of the polarity of the first pole directed toward the first pole of the permanent magnet.

Further in accordance with a preferred version of the present invention, the input coils 26, 28 are never driven with so much current that the core material 16 becomes saturated. Driving the core material 16 to saturation means that subsequent increases in input current can occur without effecting corresponding changes in magnetic flux, and therefore that input power can be wasted. In this way, the apparatus of the present invention is provided with an advantage in terms of the efficient use of input power over the apparatus of U.S. Pat. No. 4,000,401, in which a portion both ends of each magnetic path is driven to saturation to block flux flow. In the electromagnetic generator 10, the switching of current flow within the input coils 26, 28 does not need to be sufficient to stop the flow of flux in one of the magnetic paths 18, 20 while promoting the flow of magnetic flux in the other magnetic path. The electromagnetic generator 10 works by changing the flux pattern; it does not need to be completely switched from one side to another.

Experiments have determined that this configuration is superior, in terms of the efficiency of using power within the input coils 26, 28 to generate electrical power within the output coils 29, 30, to the alternative of arranging input coils and the circuits driving them so that flux from the permanent magnet is driven through the input coils as they are energized. This arrangement of the present invention provides a significant advantage over the prior-art methods shown, for example, in U.S. Pat. No. 4,077,001, in which the magnetic flux is driven through the energized coils.

The configuration of the present invention also has an advantage over the prior-art configurations of U.S. Pat. Nos. 3,368,141 and 4,077,001 in that the magnetic flux is switched between two alternate magnetic paths 18, 20 with only a single input coil 26, 28 surrounding each of the alternate magnetic paths. The configurations of U.S. Pat. Nos. 3,368,141 and 4,077,001 each require two input coils on each of the magnetic paths. This advantage of the present invention is significant both in the simplification of hardware and in increasing the efficiency of power conversion.

The right output coil 29 is electrically connected to a rectifier and filter 33, having an output driven through a regulator 34, which provides an output voltage adjustable through the use of a potentiometer 35. The output of the linear regulator 34 is in turn provided as an input to a sensing and switching circuit 36. Under start up conditions, the sensing and switching circuit 36 connects the switching and control circuit 24 to an external power source 38, which is,

for example, a starting battery. After the electromagnetic generator 10 is properly started, the sensing and switching circuit 36 senses that the voltage available from regulator 34 has reached a predetermined level, so that the power input to the switching and control circuit 24 is switched from the external power source 38 to the output of regulator 34. After this switching occurs, the electromagnetic generator 10 continues to operate without an application of external power.

The left output coil 30 is electrically connected to a rectifier and filter 40, the output of which is connected to a regulator 42, the output voltage of which is adjusted by means of a potentiometer 43. The output of the regulator 42 is in turn connected to an external load 44.

FIG. 2 is a schematic view of a first version of the switching and control circuit 24. An oscillator 50 drives the clock input of a flip-flop 54, with the Q and Q' outputs of the flip-flop 54 being connected through driver circuits 56, 58 to power FETS 60, 62 so that the input coils 26, 28 are alternately driven. In accordance with a preferred version of the present invention, the voltage V applied to the coils 26, 28 through the FETS 60, 62 is derived from the output of the sensing and switching circuit 36.

FIG. 3 is a graphical view of the signals driving the gates of FETS 60, 62 of FIG. 2, with the voltage of the signal driving the gate of FET 60 being represented by line 64, and with the voltage of the signal driving FET 62 being represented by line 66. Both of the coils 26, 28 are driven with positive voltages.

FIG. 4 is a schematic view of a second version of the switching and control circuit 24. In this version, an oscillator 70 drives the clock input of a flip-flop 72, with the Q and Q' outputs of the flip-flop 72 being connected to serve as triggers for one-shots 74, 76. The outputs of the one-shots 74, 76 are in turn connected through driver circuits 78, 80 to drive FETS 82, 84, so that the input coils 26, 28 are alternately driven with pulses shorter in duration than the Q and Q' outputs of the flip flop 72.

FIG. 5 is a graphical view of the signals driving the gates of FETS 82, 84 of FIG. 4, with the voltage of the signal driving the gate of FET 82 being represented by line 86, and with the voltage of the signal driving the gate of FET 84 being represented by line 88.

Referring again to FIG. 1, power is generated in the right output coil 29 only when the level of magnetic flux is changing in the right magnetic path 18, and in the left output coil 30 only when the level of magnetic flux is changing in the left magnetic path 20. It is therefore desirable to determine, for a specific magnetic generator configuration, the width of a pulse providing the most rapid practical change in magnetic flux, and then to provide this pulse width either by varying the frequency of the oscillator 50 of the apparatus of FIG. 2, so that this pulse width is provided with the signals shown in FIG. 3, or by varying the time constant of the one-shots 74, 76 of FIG. 4, so that this pulse width is provided by the signals of FIG. 5 at a lower oscillator frequency. In this way, the input coils are not left on longer than necessary. When either of the input coils is left on for a period of time longer than that necessary to produce the change in flux direction, power is being wasted through heating within the input coil without additional generation of power in the corresponding output coil.

A number of experiments have been conducted to determine the adequacy of an electromagnetic generator built as the generator 10 in FIG. 1 to produce power both to drive the switching and control logic, providing power to the input

coils **26, 28**, and to drive an external load **44**. In the configuration used in this experiment, the input coils **26, 28** had 40 turns of 18-gauge copper wire, and the output coils **29, 30** had 450 turns of 18-gauge copper wire. The permanent magnet **12** had a height of 40 mm (1.575 in. between its north and south poles, in the direction of arrow **89**, a width of 25.4 mm (1.00 in.), in the direction of arrow **90**, and in the other direction, a depth of 38.1 mm (1.50 in.). The core **16** had a height, in the direction of arrow **89**, of 90 mm (3.542 in.), a width, in the direction of arrow **90**, of 135 mm (5.315 in.) and a depth of 70 mm (2.756 in.). The core **16** had a central hole with a height, in the direction of arrow **89**, of 40 mm (1.575 in.) to accommodate the magnet **12**, and a width, in the direction of arrow **90**, of 85 mm (3.346 in.). The core **16** was fabricated of two "C"-shaped halves, joined at lines **92**, to accommodate the winding of output coils **29, 30** and input coils **26, 28** over the core material.

The core material was a laminated iron-based magnetic alloy sold by Honeywell as METGLAS Magnetic Alloy 2605SA1. The magnet material was a combination of iron, neodymium, and boron.

The input coils **26, 28** were driven at an oscillator frequency of 87.5 KHz, which was determined to produce optimum efficiency using a switching control circuit configured as shown in FIG. 2. This frequency has a period of 11.45 microseconds. The flip flop **54** is arranged, for example, to be set and reset on rising edges of the clock signal input from the oscillator, so that each pulse driving one of the FETS **60, 62** has a duration of 11.45 microseconds, and so that sequential pulses are also separated to each FET are also separated by 11.45 microseconds.

FIGS. 6A–6H are graphical views of signals which simultaneously occurred within the apparatus of FIGS. 1 and 2 during operation with an applied input voltage of 75 volts. FIG. 6A shows a first drive signal **100** driving FET **60**, which conducts to drive the right input coil **26**. FIG. 6B is shows a second drive signal **102** driving FET **62**, which conducts to drive the left input coil **28**.

FIGS. 6C and 6D show voltage and current signals associated with current driving both the FETS **60, 62** from a battery source. FIG. 6C shows the level **104** of voltage V. While the nominal voltage of the battery was 75 volts, a decaying transient signal **106** is superimposed on this voltage each time one of the FETS **60, 62** is switched on to conduct. The specific pattern of this transient signal depends on the internal resistance of the battery, as well as on a number of characteristics of the magnetic generator **10**. Similarly, FIG. 6D shows the current **106** flowing into both FETS **60, 62** from the battery source. Since the signals **104, 106** show the effects of current flowing into both FETS **60, 62** the transient spikes are 11.45 microseconds apart.

FIGS. 6E–6H show voltage and current levels measured at the output coils **29, 30**. FIG. 6E shows a voltage output signal **108** of the right output coil **29**, while FIG. 6F shows a voltage output signal **110** of the left output coil **30**. For example, the output current signal **116** of the right output coil **29** includes a first transient spike **112** caused when the a current pulse in the left input coil **28** is turned on to direct magnetic flux through the right magnetic path **18**, and a second transient spike **114** caused when the left input coil **28** is turned off with the right input coil **26** being turned on. FIG. 6G shows a current output signal **116** of the right output coil **29**, while FIG. 6H shows a current output signal **118** of the left output coil **30**.

FIG. 7 is a graphical view of output power measured using the electromagnetic generator **10** and eight levels of

input voltage, varying from 10v to 75v. The oscillator frequency was retained at 87.5 KHz. The measurement points are represented by indicia **120**, while the curve **122** is generated by polynomial regression analysis using a least squares fit.

FIG. 8 is a graphical view of a coefficient of performance, defined as the ratio of the output power to the input power, for each of the measurement points shown in FIG. 7. At each measurement point, the output power was substantially higher than the input power. Real power measurements were computed at each data point using measured voltage and current levels, with the results being averaged over the period of the signal. These measurements agree with RMS power measured using a Tectronic THS730 digital oscilloscope.

While the electromagnetic generator **10** was capable of operation at much higher voltages and currents without saturation, the input voltage was limited to 75 volts because of voltage limitations of the switching circuits being used. Those skilled in the relevant art will understand that components for switching circuits capable of handling higher voltages in this application are readily available. The experimentally-measured data was extrapolated to describe operation at an input voltage of 100 volts, with the input current being 140 ma, the input power being 14 watts, and with a resulting output power being 48 watts for each of the two output coils **29, 30**, at an average output current of 12 ma and an average output voltage of 4000 volts. This means that for each of the output coils **29, 30**, the coefficient of performance would be 3.44.

While an output voltage of 4000 volts may be needed for some applications, the output voltage can also be varied through a simple change in the configuration of the electromagnetic generator **10**. The output voltage is readily reduced by reducing the number of turns in the output windings. If this number of turns is decreased from 450 to 12, the output voltage is dropped to 106.7, with a resulting increase in output current to 0.5 amps for each output coil **29, 30**. In this way, the output current and voltage of the electromagnetic generator can be varied by varying the number of turns of the output coils **29, 30**, without making a substantial change in the output power, which is instead determined by the input current, which determines the amount of magnetic flux shuttled during the switching process.

The coefficients of performance, all of which were significantly greater than 1, plotted in FIG. 8 indicate that the output power levels measured in each of the output coils **29, 30** were substantially greater than the corresponding input power levels driving both of the input coils **26, 28**. Therefore, it is apparent that the electromagnetic generator **10** can be built in a self-actuating form, as discussed above in reference to FIG. 1. In the example of FIG. 1, except for a brief application of power from the external power source **38**, to start the process of power generation, the power required to drive the input coils **26, 28** is derived entirely from power developed within the right output coil **29**. If the power generated in a single output coil **29, 30** is more than sufficient to drive the input coils **26, 28**, an additional load **126** may be added to be driven with power generated in the output coil **29** used to generate power to drive the input coils **26, 28**. On the other hand, each of the output coils **29, 30** may be used to drive a portion of the input coil power requirements, for example with one of the output coils **26, 28** providing the voltage V for the FET **60** (shown in FIG. 2), while the other output coil provides this voltage for the FET **62**.

Regarding thermodynamic considerations, it is noted that, when the electromagnetic generator **10** is operating, it is an

open system not in thermodynamic equilibrium. The system receives static energy from the magnetic flux of the permanent magnet. Because the electromagnetic generator **10** is self-switched without an additional energy input, the thermodynamic operation of the system is an open dissipative system, receiving, collecting, and dissipating energy from its environment; in this case, from the magnetic flux stored within the permanent magnet. Continued operation of the electromagnetic generator **10** causes demagnetization of the permanent magnet. The use of a magnetic material including rare earth elements, such as a samarium cobalt material or a material including iron, neodymium, and boron is preferable within the present invention, since such a magnetic material has a relatively long life in this application.

Thus, an electromagnetic generator operating in accordance with the present invention should be considered not as a perpetual motion machine, but rather as a system in which flux radiated from a permanent magnet is converted into electricity, which is used both to power the apparatus and to power an external load. This is analogous to a system including a nuclear reactor, in which a number of fuel rods radiate energy which is used to keep the chain reaction going and to heat water for the generation of electricity to drive external loads.

FIG. **9** is a cross-sectional elevation of an electromagnetic generator **130** built in accordance with a second version of the first embodiment of the present invention. This electromagnetic generator **130** is generally similar in construction and operation to the electromagnetic generator **10** built in accordance with the first version of this embodiment, except that the magnetic core **132** of the electromagnetic generator **10** is built in two halves joined along lines **134**, allowing each of the output coils **135** to be wound on a plastic bobbin **136** before the bobbin **136** is placed over the legs **137** of the core **132**. FIG. **9** also shows an alternate placement of an input coil **138**. In the example of FIG. **1**, both input coils **26**, **28** were placed on the upper portion of the magnetic core **16**, with these coils **26**, **28** being configured to establish magnetic fields having north magnetic poles at the inner ends **31**, **32** of the coils **26**, **28**, with these north magnetic poles thus being closest to the end **14** of the permanent magnet **12** having its north magnetic pole. In the example of FIG. **9**, a first input coil **26** is as described above in reference to FIG. **1**, but the second input coil **138** is placed adjacent the south pole **140** of the permanent magnet **12**. This input coil **138** is configured to establish a south magnetic pole at its inner end **142**, so that, when input coil **138** is turned on, flux from the permanent magnet **12** is directed away from the left magnetic path **20** into the right magnetic path **18**.

FIGS. **10** and **11** show an electromagnetic generator **150** built in accordance with a first version of a second embodiment of the present invention, with FIG. **10** being a top view thereof, and with FIG. **11** being a front elevation thereof. This electromagnetic generator **150** includes an output coil **152**, **153** at each corner, and a permanent magnet **154** extending along each side between output coils. The magnetic core **156** includes an upper plate **158**, a lower plate **160**, and a square post **162** extending within each output coil **152**, **153**. Both the upper plate **158** and the lower plate **160** include central apertures **164**.

Each of the permanent magnets **154** is oriented with a like pole, such as a north pole, against the upper plate **158**. Eight input coils **166**, **168** are placed in positions around the upper plate **158** between an output coil **152**, **153** and a permanent magnet **154**. Each input coil **166**, **168** is arranged to form a magnetic pole at its end nearest to the adjacent permanent magnet **154** of a like polarity to the magnetic poles of the

magnets **154** adjacent the upper plate **158**. Thus, the input coils **166** are switched on to divert magnetic flux of the permanent magnets **154** from the adjacent output coils **152**, with this flux being diverted into magnetic paths through the output coils **153**. Then, the input coils **168** are switched on to divert magnetic flux of the permanent magnets **154** from the adjacent output coils **153**, with this flux being diverted into magnetic paths through the output coils **152**. Thus, the input coils form a first group of input coils **166** and a second group of input coils **168**, with these first and second groups of input coils being alternately energized in the manner described above in reference to FIG. **1** for the single input coils **26**, **28**. The output coils produce current in a first train of pulses occurring simultaneously within coils **152** and in a second train of pulses occurring simultaneously within coils **153**.

Thus, driving current through input coils **166** causes an increase in flux from the permanent magnets **154** within the posts **162** extending through output coils **153** and a decrease in flux from the permanent magnets **154** within the posts **162** extending through output coils **152**. On the other hand, driving current through input coils **168** causes a decrease in flux from the permanent magnets **154** within the posts **162** extending through output coils **153** and an increase in flux from the permanent magnets **154** within the posts **162** extending through output coils **152**.

While the example of FIGS. **10** and **11** shows all of the input coils **166**, **168** deployed along the upper plate **158**, it is understood that certain of these input coils **166**, **168** could alternately be deployed around the lower plate **160**, in the manner generally shown in FIG. **9**, with one input coil **166**, **168** being within each magnetic circuit between a permanent magnet **154** and an adjacent post **162** extending within an output coil **152**, **153**, and with each input coil **166**, **168** being arranged to produce a magnetic field having a magnetic pole like the closest pole of the adjacent permanent magnet **154**.

FIG. **12** is a top view of a second version **170** of the second embodiment of the present invention, which is similar to the first version thereof, which has been discussed in reference to FIGS. **10** and **11**, except that an upper plate **172** and a similar lower plate (not shown) are annular in shape, while the permanent magnets **174** and posts **176** extending through the output coils **178** are cylindrical. The input coils **180** are oriented and switched as described above in reference to FIGS. **9** and **10**.

While the example of FIG. **12** shows four permanent magnets, four output coils and eight input coils it is understood that the principles described above can be applied to electromagnetic generators having different numbers of elements. For example, such a device can be built to have two permanent magnets, two output coils, and four input coils, or to have six permanent magnets, six output coils, and twelve input coils.

In accordance with the present invention, material used for magnetic cores is preferably a nanocrystalline alloy, and alternately an amorphous alloy. The material is preferably in a laminated form. For example, the core material is a cobalt-niobium-boron alloy or an iron based magnetic alloy.

Also in accordance with the present invention, the permanent magnet material preferably includes a rare earth element. For example, the permanent magnet material is a samarium cobalt material or a combination of iron, neodymium, and boron.

While the invention has been described in its preferred versions and embodiments with some degree of particularity, it is understood that this description has been

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given only by way of example and that numerous changes in the details of construction, fabrication, and use, including the combination and arrangement of parts, may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. An electromagnetic generator comprising:

- a permanent magnet having magnetic poles at opposite ends;
- a magnetic core including first and second magnetic paths between said opposite ends of said permanent magnet, wherein
  - said magnetic core comprises a closed loop,
  - said permanent magnet extends within said closed loop, and
  - said opposite ends of said permanent magnet are disposed adjacent opposite sides of said closed loop and against internal surfaces of said magnetic core comprising said closed loop;
- a first input coil extending around a portion of said first magnetic path,
- a second input coil extending around a portion of said second magnetic path,
- a first output coil extending around a portion of said first magnetic path for providing a first electrical output;
- a second output coil extending around a portion of said second magnetic path for providing a second electrical output; and
- a switching circuit driving electrical current alternately through said first and second input coils, wherein
  - said electrical current driven through said first input coil causes said first input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said first magnetic path, and
  - said electrical current driven through said second input coil causes said second input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said second magnetic path.

2. An electromagnetic generator comprising:

- a permanent magnet having magnetic poles at opposite ends;
- a magnetic core including first and second magnetic paths between said opposite ends of said permanent magnet, wherein
  - said magnetic core comprises a closed loop,
  - said permanent magnet extends within said closed loop,
  - said opposite ends of said permanent magnet are disposed adjacent opposite sides of said closed loop, and
  - a first type of pole of said permanent magnet is disposed adjacent a first side of said closed loop;
- a first input coil, disposed along said first side of said closed loop, extending around a portion of said first magnetic path,
- a second input coil, disposed along said first side of said closed loop, extending around a portion of said second magnetic path,
- a first output coil extending around a portion of said first magnetic path for providing a first electrical output;
- a second output coil extending around a portion of said second magnetic path for providing a second electrical output; and
- a switching circuit driving electrical current alternately through said first and second input coils, wherein

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said electrical current driven through said first input coil causes said first input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said first magnetic path, and additionally causes said first input coil to produce a magnetic field having said first type of pole at an end of said first input coil adjacent said permanent magnet, and

said electrical current driven through said second input coil causes said second input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said second magnetic path, and additionally causes said second input coil to produce a magnetic field having said first type of pole at an end of said second input coil adjacent said permanent magnet.

3. An electromagnetic generator comprising:

- a permanent magnet having magnetic poles at opposite ends;
  - a magnetic core including first and second magnetic paths between said opposite ends of said permanent magnet, wherein
    - said magnetic core comprises a closed loop,
    - said permanent magnet extends within said closed loop, and
    - said opposite ends of said permanent magnet are disposed adjacent opposite sides of said closed loop,
  - a first type of pole of said permanent magnet is disposed adjacent a first side of said closed loop, and
  - a second type of pole, opposite said first type of pole, of said permanent magnet is disposed adjacent a second side of said closed loop;
  - a first input coil extending around a portion of said first magnetic path, wherein said first input coil is disposed along said first side of said closed loop;
  - a second input coil extending around a portion of said second magnetic path wherein said second input coil is disposed along said second side of said closed loop;
  - a first output coil extending around a portion of said first magnetic path for providing a first electrical output;
  - a second output coil extending around a portion of said second magnetic path for providing a second electrical output; and
  - a switching circuit driving electrical current alternately through said first and second input coils, wherein
    - said electrical current driven through said first input coil causes said first input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said first magnetic path, and additionally causes said first input coil to produce a magnetic field having said first type of pole at an end of said first input coil adjacent said permanent magnet, and
    - said electrical current driven through said second input coil causes said second input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said second magnetic path, and additionally causes said second input coil to produce a magnetic field having said second type of pole at an end of said second input coil adjacent said permanent magnet.
4. An electromagnetic generator comprising:
- a permanent magnet having magnetic poles at opposite ends;
  - a magnetic core including first and second magnetic paths between said opposite ends of said permanent magnet;

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- a first input coil extending around a portion of said first magnetic path,
  - a second input coil extending around a portion of said second magnetic path,
  - a first output coil extending around a portion of said first magnetic path for providing a first electrical output;
  - a second output coil extending around a portion of said second magnetic path for providing a second electrical output; and
  - a switching circuit driving electrical current alternately through said first and second input coils, wherein said electrical current driven through said first input coil causes said first input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said first magnetic path, and wherein said electrical current driven through said second input coil causes said second input coil to produce a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said second magnetic path, wherein a portion of electrical power induced in said first output coil provides power to drive said switching circuit.
5. The electromagnetic generator of claim 4, wherein said switching circuit is driven by an external power source during a starting process and by power induced in said first output coil during operation after said starting process.
  6. The electromagnetic generator of claim 2, wherein said magnetic core is composed of a nanocrystalline magnetic alloy.
  7. The electromagnetic generator of claim 6, wherein said nanocrystalline magnetic alloy is a cobalt-niobium-boron alloy.
  8. The electromagnetic generator of claim 6, wherein said nanocrystalline magnetic alloy is an iron-based alloy.
  9. The electromagnetic generator of claim 2, wherein said changes in flux density within said magnetic core occur without driving said magnetic core to magnetic saturation.
  10. The electromagnetic generator of claim 2, wherein said switching circuit drives said electrical current through said first input coil in response to a first train of pulses,
  - said switching circuit drives said electrical current through said second input coil in response to a second train of pulses, alternating with pulses within said first train of pulses, and
  - said pulses in said first and second trains of pulses are approximately 11.5 milliseconds in duration.
  11. The electromagnetic generator of claim 2, wherein said permanent magnet is composed of a material including a rare earth element.
  12. The electromagnetic generator of claim 11, wherein said permanent magnet is composed essentially of samarium cobalt.
  13. The electromagnetic generator of claim 11, wherein said permanent magnet is composed essentially of iron, neodymium, and boron.
  14. An electromagnetic generator comprising:
    - a magnetic core including a pair of spaced-apart plates, wherein each of said spaced-apart plates includes a central aperture, and first and second pluralities of posts extending between said spaced-apart plates;
    - a plurality of permanent magnets extending individually between said pair of spaced-apart plates and between adjacent posts within said plurality of posts, wherein each permanent magnet within said plurality of permanent magnets has magnetic poles at opposite ends,

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- wherein all magnets within said plurality of magnets are oriented to produce magnetic fields having a common direction;
  - first and second pluralities of input coils, wherein each input coil within said first and second pluralities of input coils extends around a portion of a plate within said spaced-apart plates between a post in said plurality of posts and a permanent magnet in said plurality of permanent magnets;
  - an output coil extending around each post in said first and second pluralities of posts for providing an electrical output;
  - a switching circuit driving electrical current alternatively through said first and second pluralities of input coils, wherein said electrical current driven through each input coil in said first plurality of input coils causes an increase in magnetic flux within each post within said first plurality of posts from permanent magnets on each side of said post and a decrease in magnetic flux within each post within said second plurality of posts from permanent magnets on each side of said post, and wherein said electrical current driven through input coil in said second plurality of input coils causes a decrease in magnetic flux within each post within said first plurality of posts from permanent magnets on each side of said post and an increase in magnetic flux within each post within said second plurality of posts from permanent magnets on each side of said post.
15. The electromagnetic generator of claim 14, wherein each input coil extends around a portion of a magnetic path through said magnetic core between said opposite ends a permanent magnet adjacent said input coil,
  - said magnetic path extends through a post within said magnetic core adjacent said input coil, and
  - driving electrical current through said input coil causes said input coil to produce a magnetic field opposing a concentration of magnetic flux within said magnetic path.
  16. The electromagnetic generator of claim 14, wherein said switching circuit is driven by an external power source during a starting process and by power induced in said output coils during operation after said starting process.
  17. The electromagnetic generator of claim 14, wherein said magnetic core is composed of a nanocrystalline magnetic alloy.
  18. The electromagnetic generator of claim 2, wherein a portion of electrical power induced in said first output coil provides power to drive said switching circuit.
  19. The electromagnetic generator of claim 18, wherein said switching circuit is driven by an external power source during a starting process and by power induced in said first output coil during operation after said starting process.
  20. The electromagnetic generator of claim 3, wherein a portion of electrical power induced in said first output coil provides power to drive said switching circuit.
  21. The electromagnetic generator of claim 20, wherein said switching circuit is driven by an external power source during a starting process and by power induced in said first output coil during operation after said starting process.
  22. The electromagnetic generator of claim 3, wherein said magnetic core is composed of a nanocrystalline magnetic alloy.
  23. The electromagnetic generator of claim 22, wherein said nanocrystalline magnetic alloy is a cobalt-niobium-boron alloy.



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24. The electromagnetic generator of claim 22, wherein said nanocrystalline magnetic alloy is an iron-based alloy.

25. The electromagnetic generator of claim 3, wherein said changes in flux density within said magnetic core occur without driving said magnetic core to magnetic saturation. 5

26. The electromagnetic generator of claim 3, wherein said switching circuit drives said electrical current through said first input coil in response to a first train of pulses,

said switching circuit drives said electrical current 10 through said second input coil in response to a second train of pulses, alternating with pulses within said first train of pulses, and

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said pulses in said first and second trains of pulses are approximately 11.5 milliseconds in duration.

27. The electromagnetic generator of claim 3, wherein said permanent magnet is composed of a material including a rare earth element.

28. The electromagnetic generator of claim 27, wherein said permanent magnet is composed essentially of samarium cobalt.

29. The electromagnetic generator of claim 27, wherein said permanent magnet is composed essentially of iron, neodymium, and boron.

\* \* \* \* \*

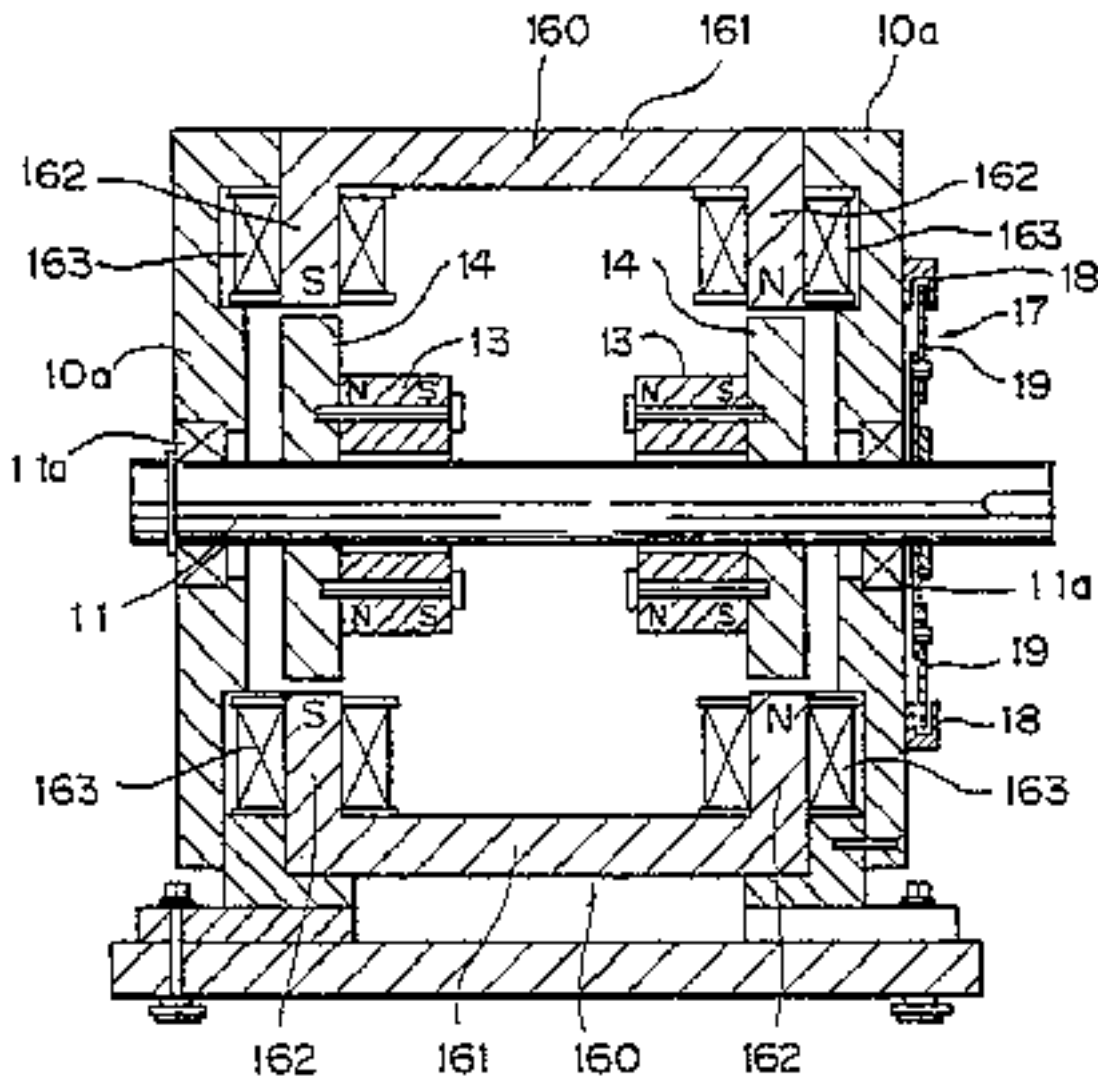
# [The Tom Bearden Website](#)

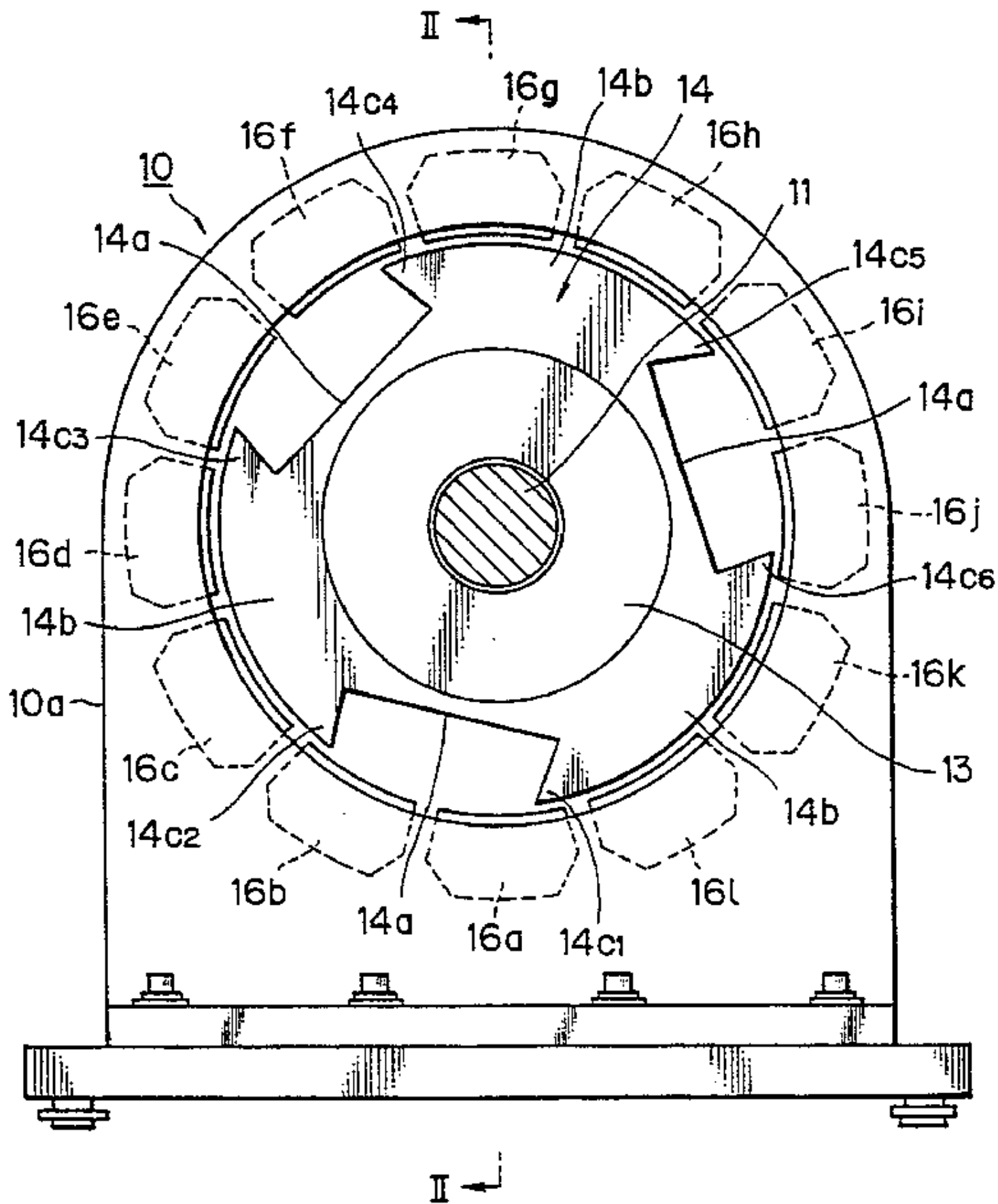
## Kawai Patent Diagrams - 19 sheets

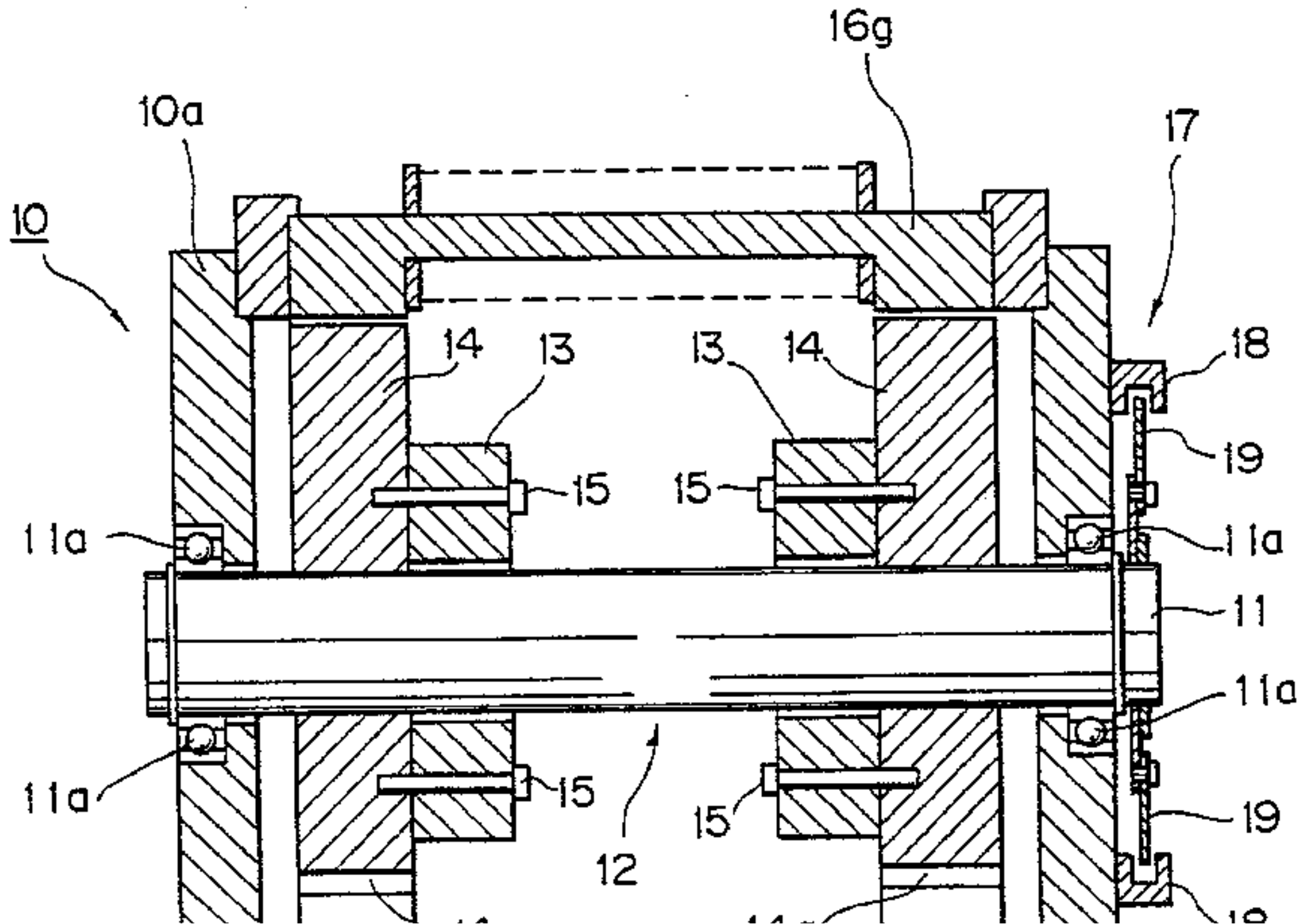
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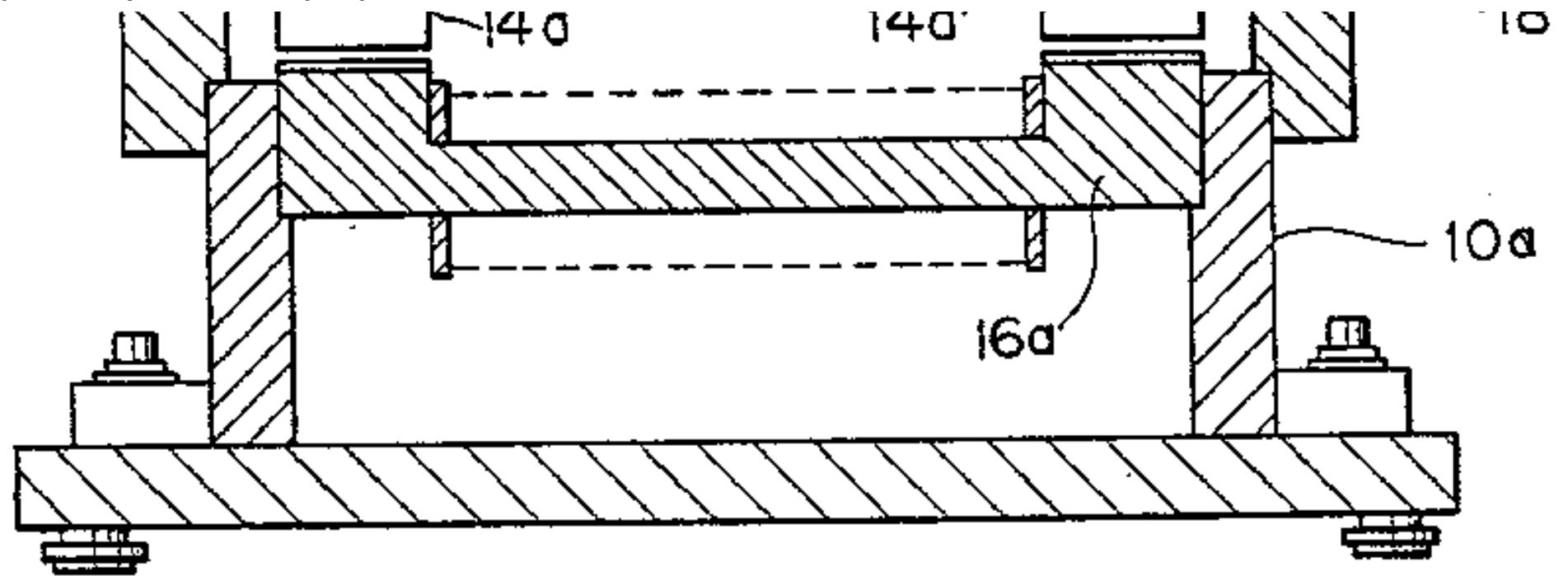
<a href="#">Initial Diagram</a>	
Sheet 1	<a href="#">fig.1</a>
Sheet 2	<a href="#">fig. 2</a>
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Sheet 4	<a href="#">fig. 4A</a> <a href="#">fig. 4B</a> <a href="#">fig. 4C</a>
Sheet 5	<a href="#">fig. 4D</a> <a href="#">fig. 4E</a> <a href="#">fig. 4F</a>
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Sheet 15	<a href="#">fig. 11A/11B</a> <a href="#">fig. 11C/11D</a> <a href="#">fig. 11E/11F</a> <a href="#">fig. 11G/11H</a>
Sheet 16	<a href="#">fig. 12</a> PRIOR ART <a href="#">fig. 13</a> PRIOR ART
Sheet 17	<a href="#">fig. 14</a> PRIOR ART <a href="#">fig. 15</a> PRIOR ART
Sheet 18	<a href="#">fig. 16</a> PRIOR ART
Sheet 19	<a href="#">fig. 17</a> PRIOR ART

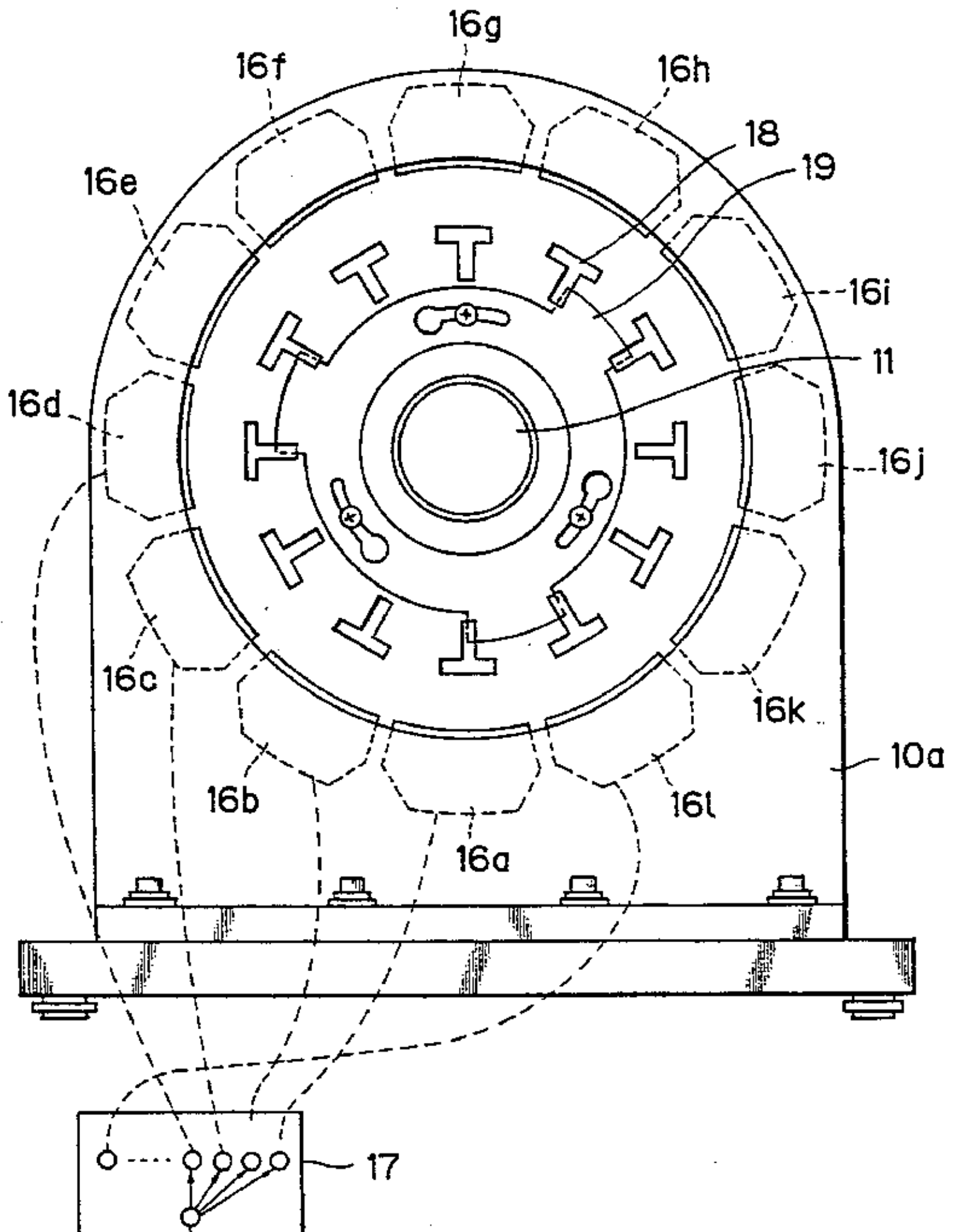




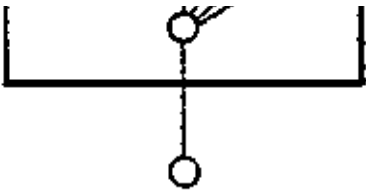


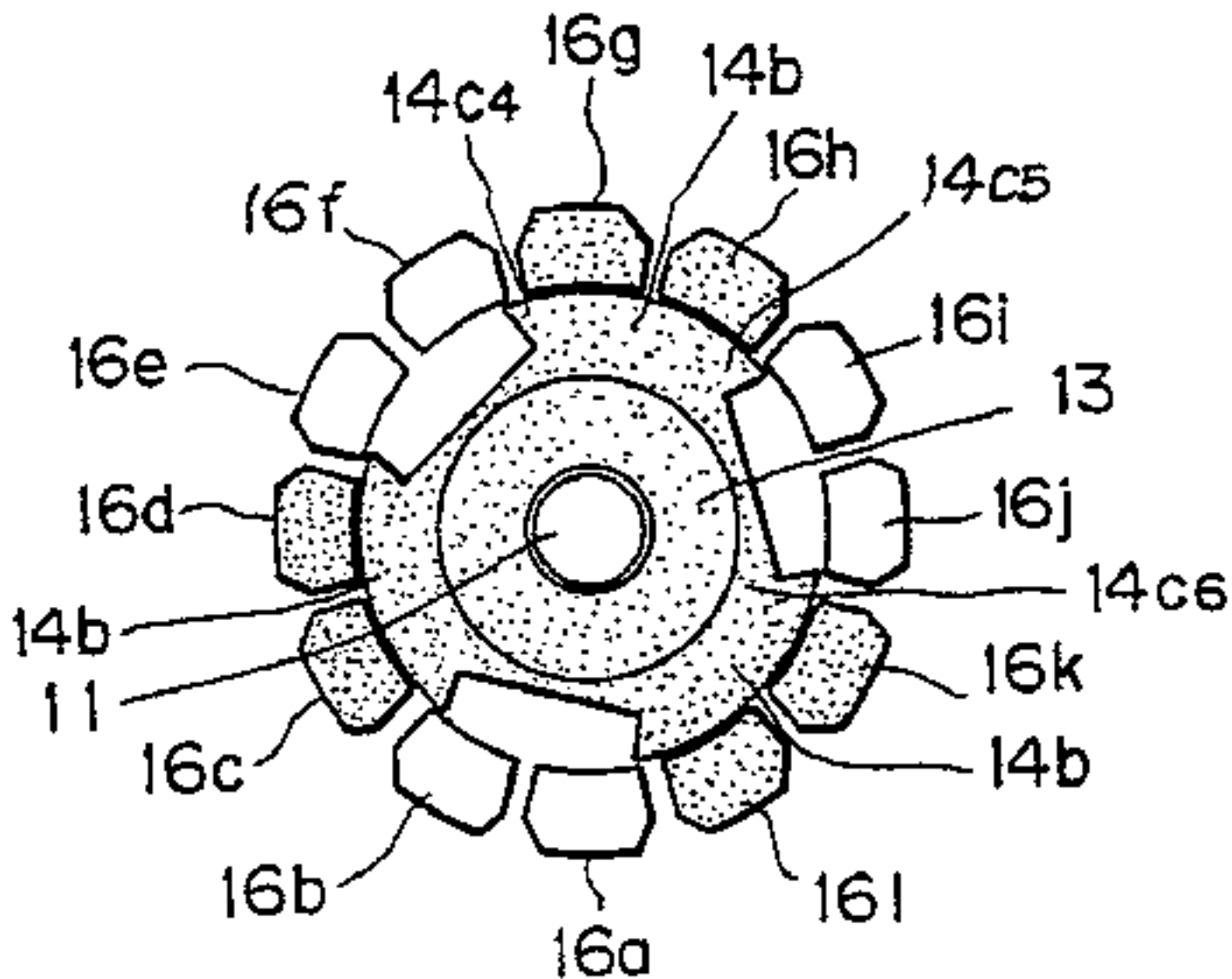


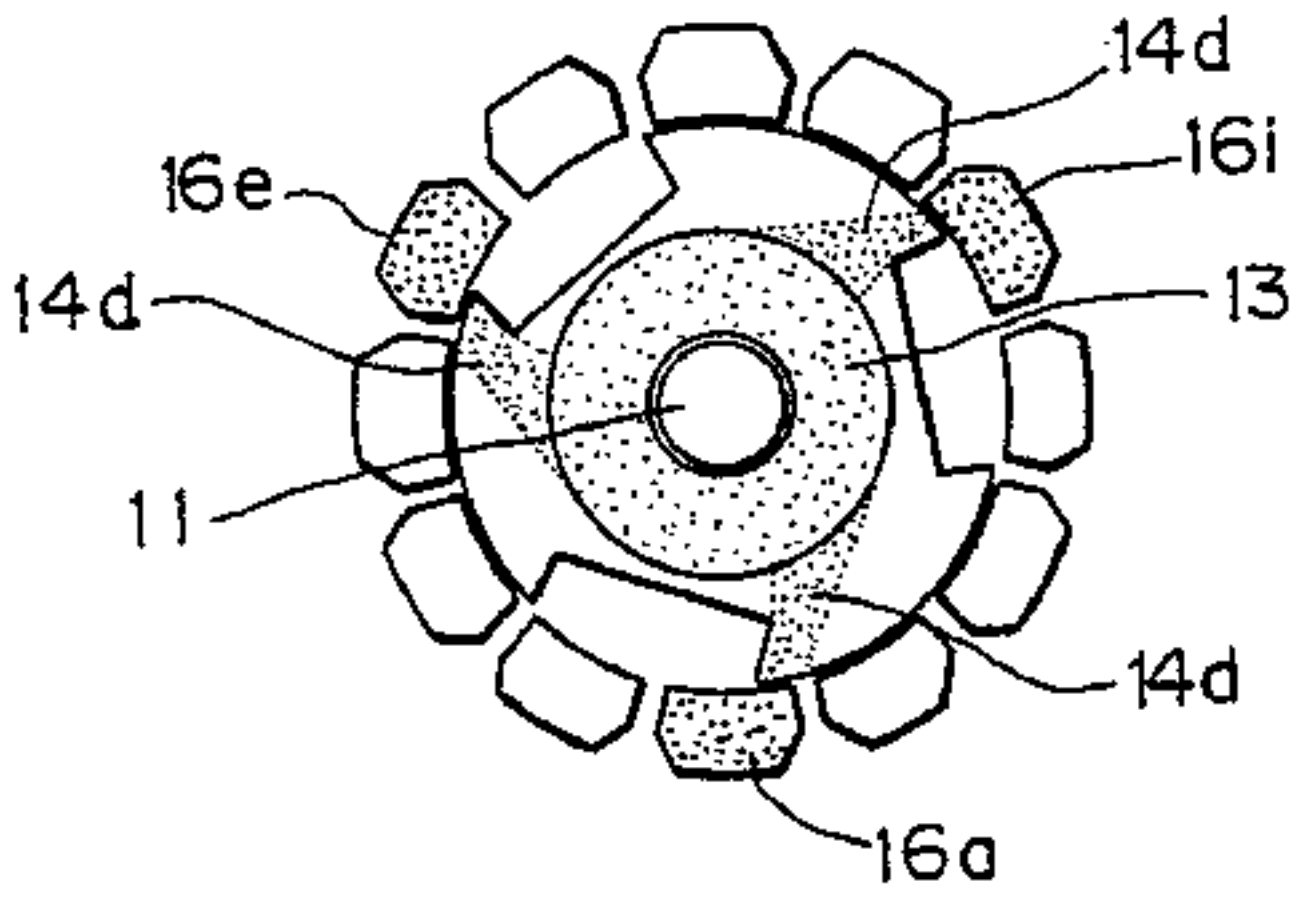
*Fig. 3*

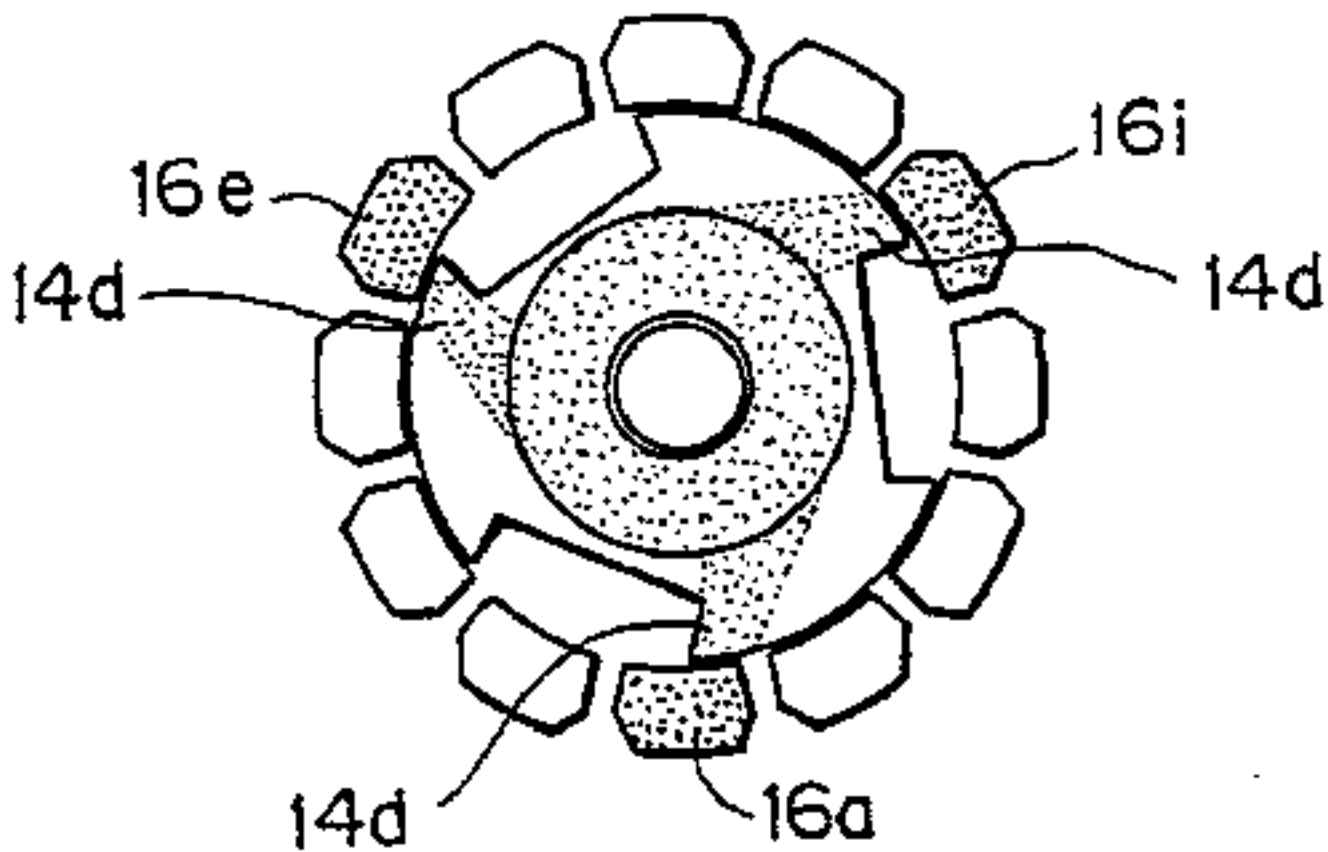


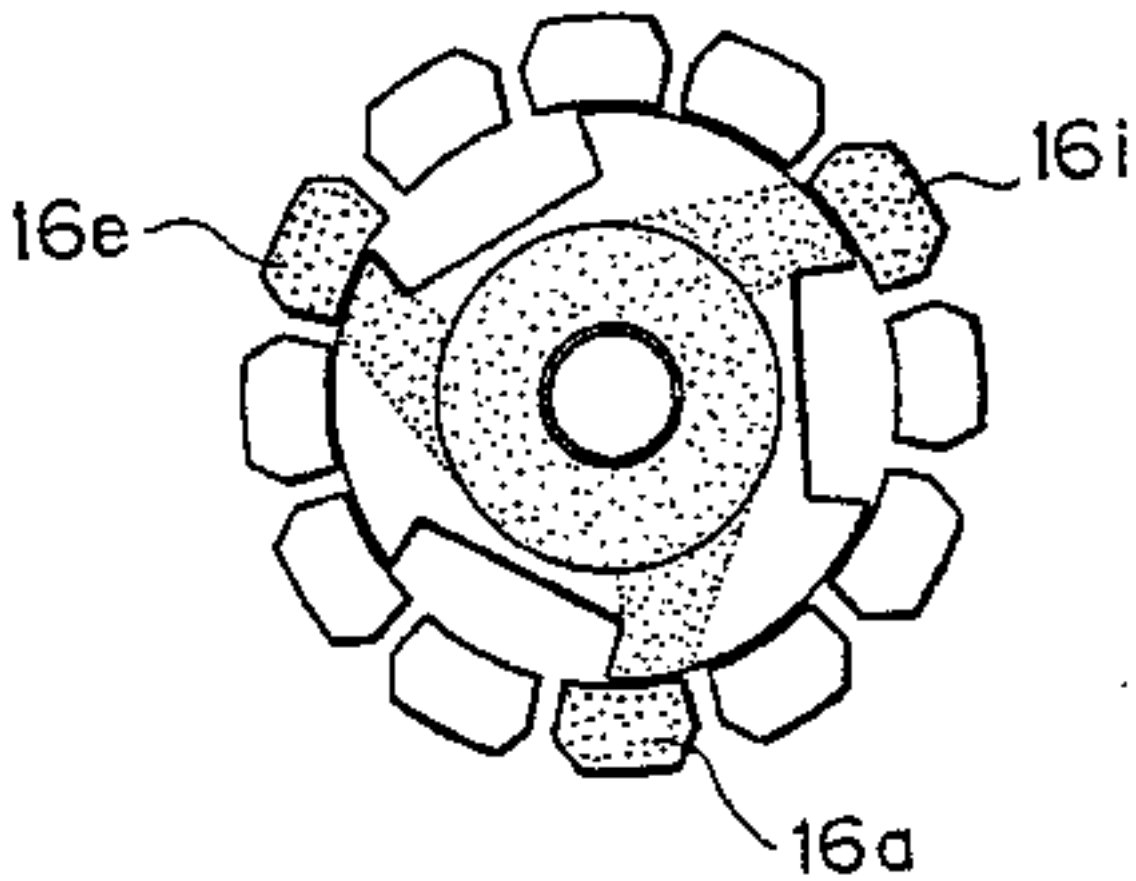


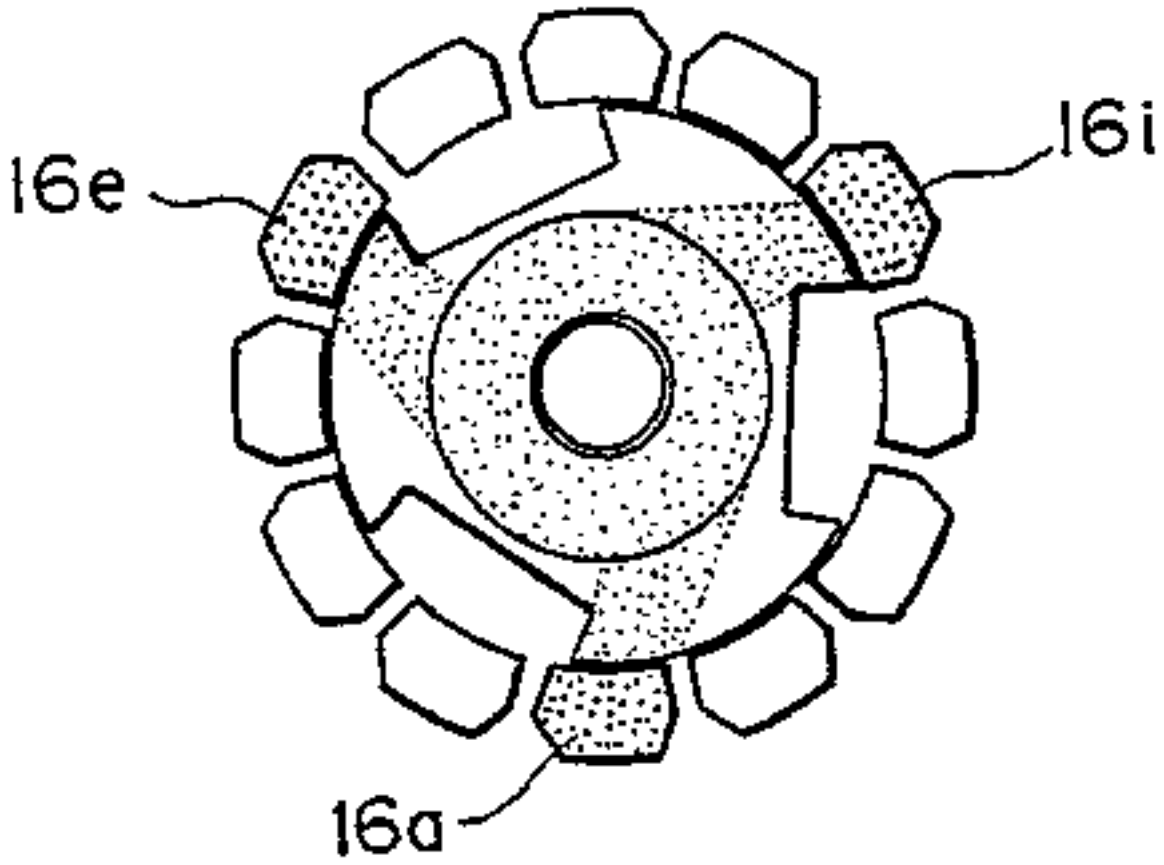


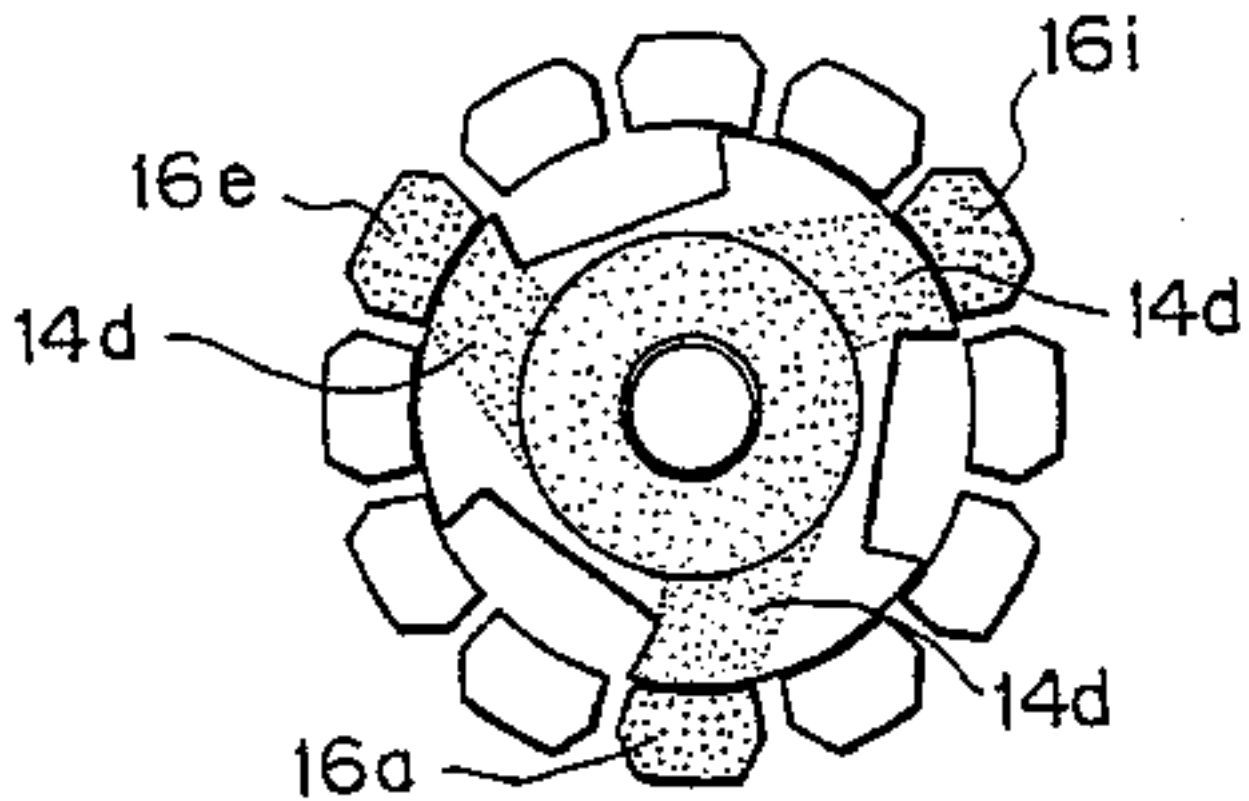


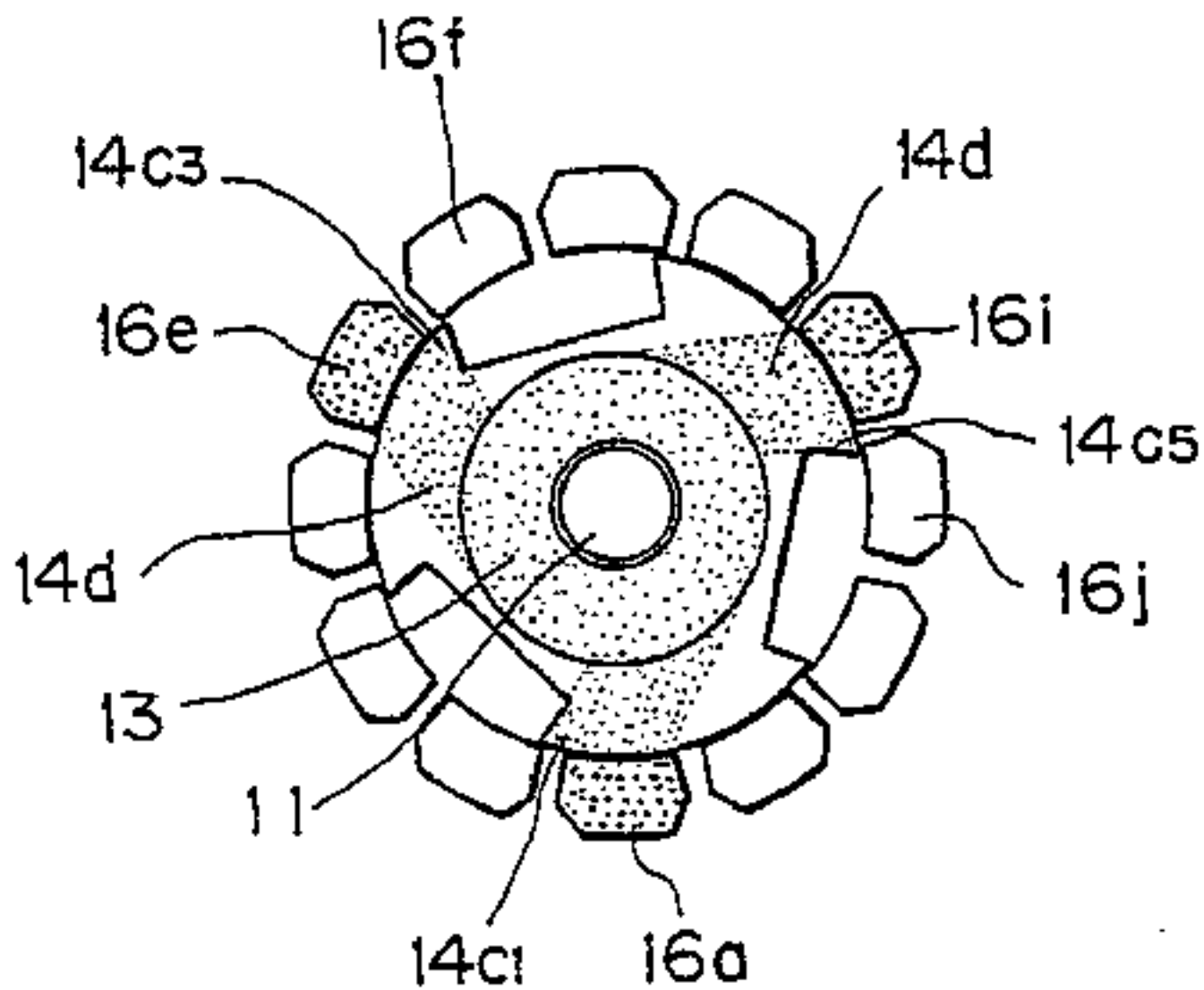




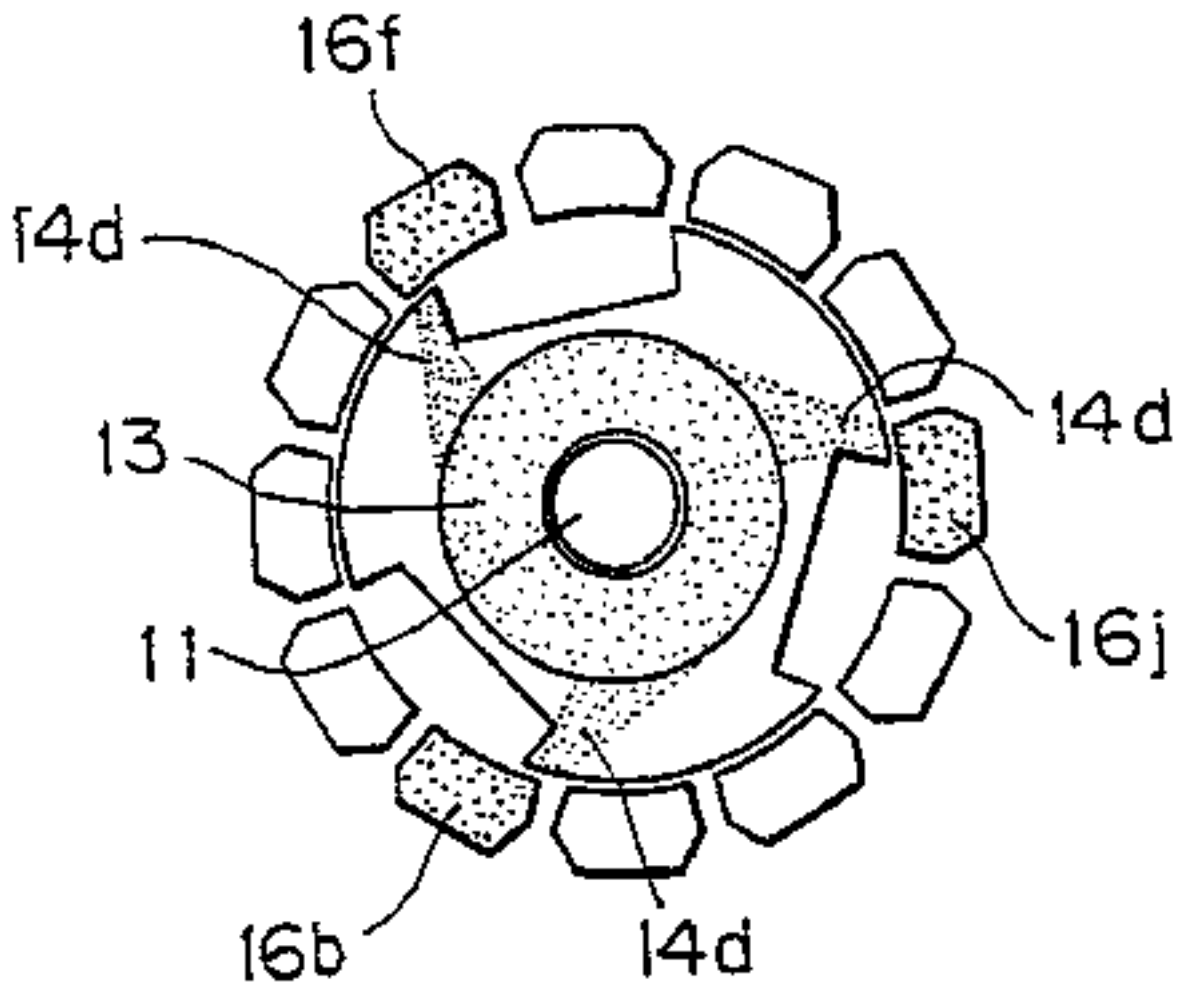


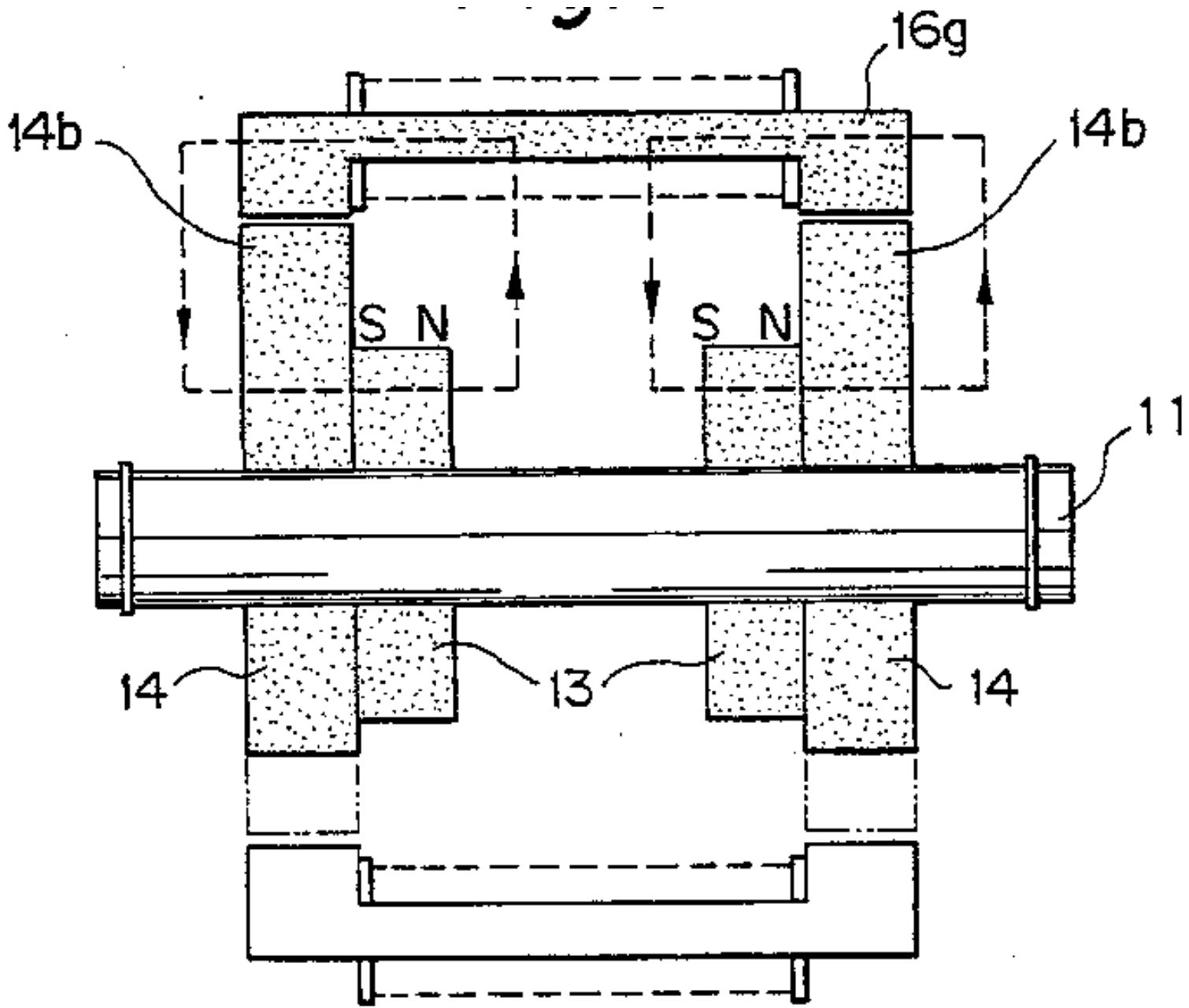


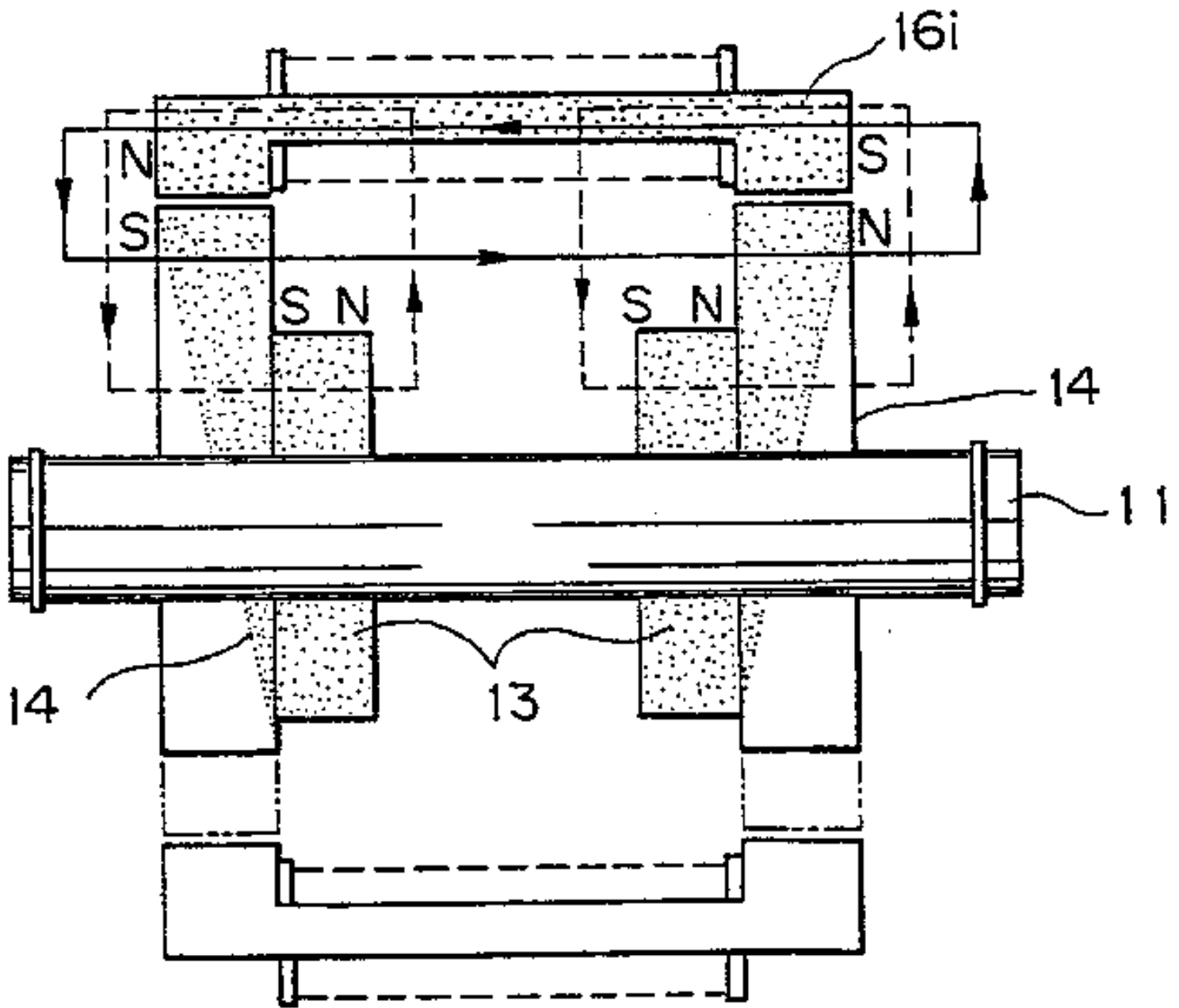


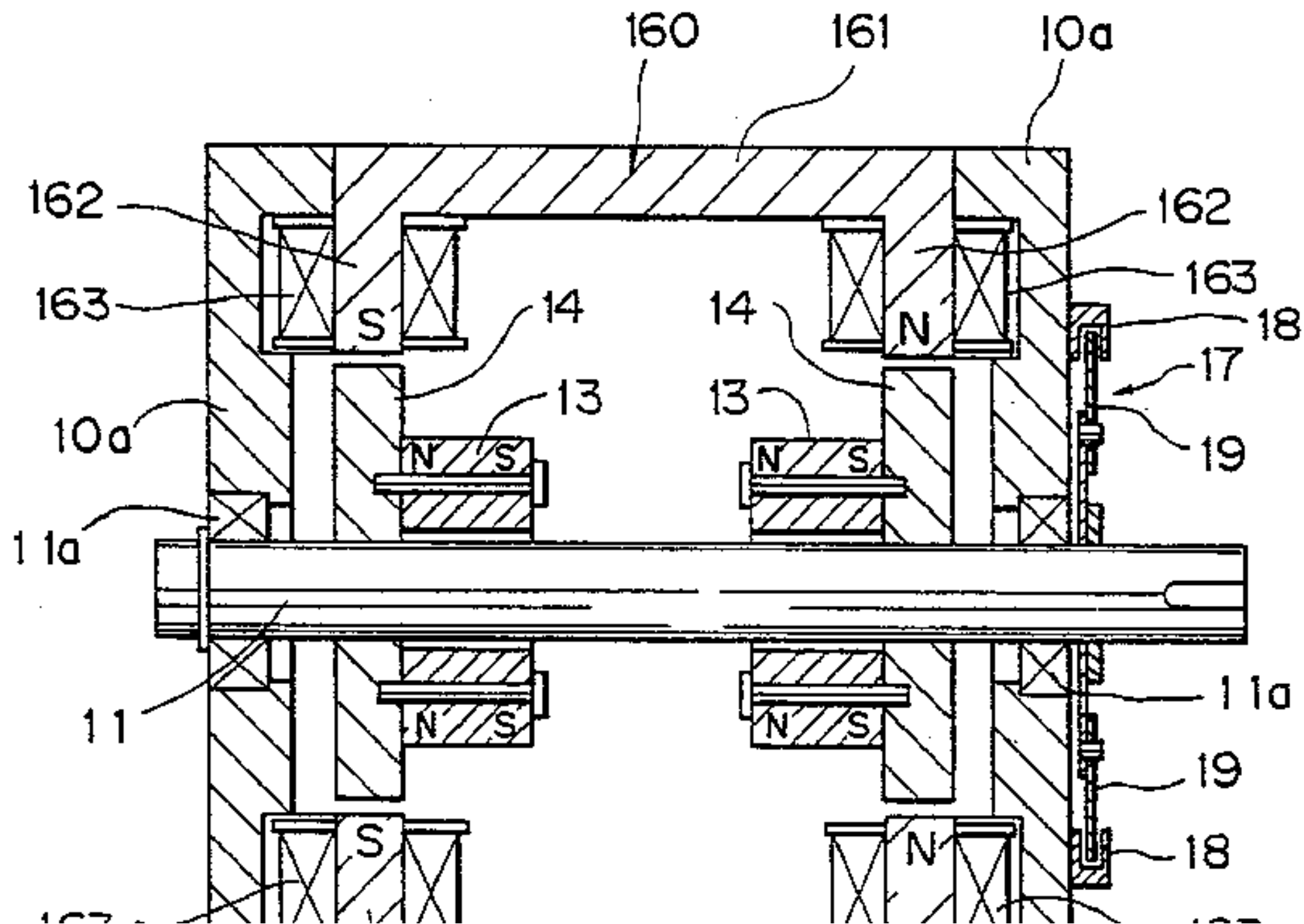


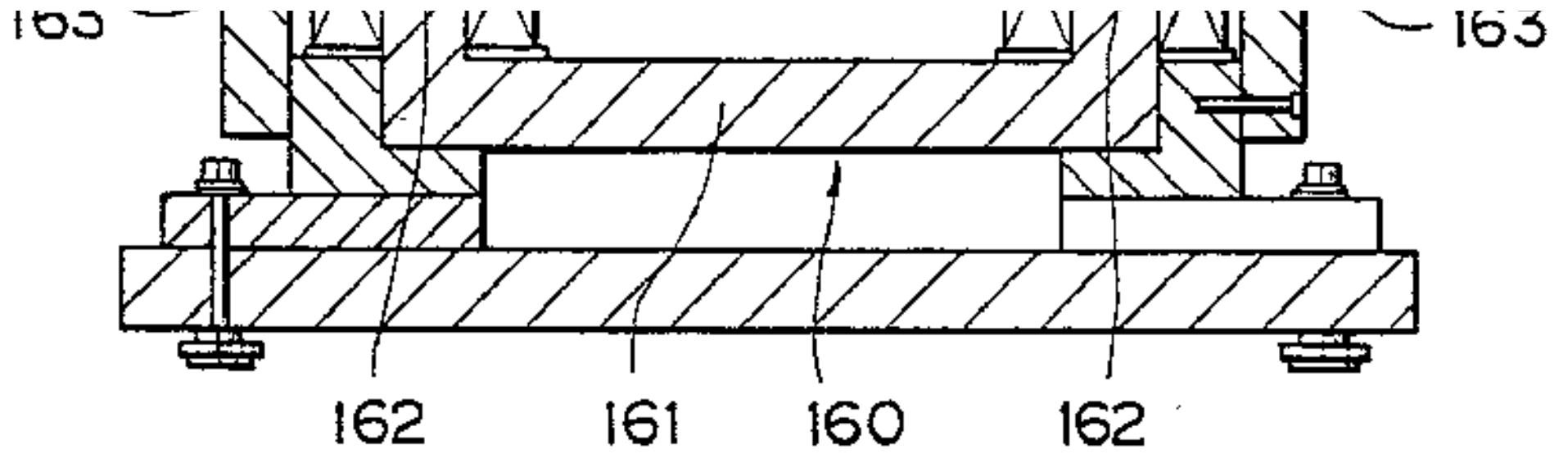


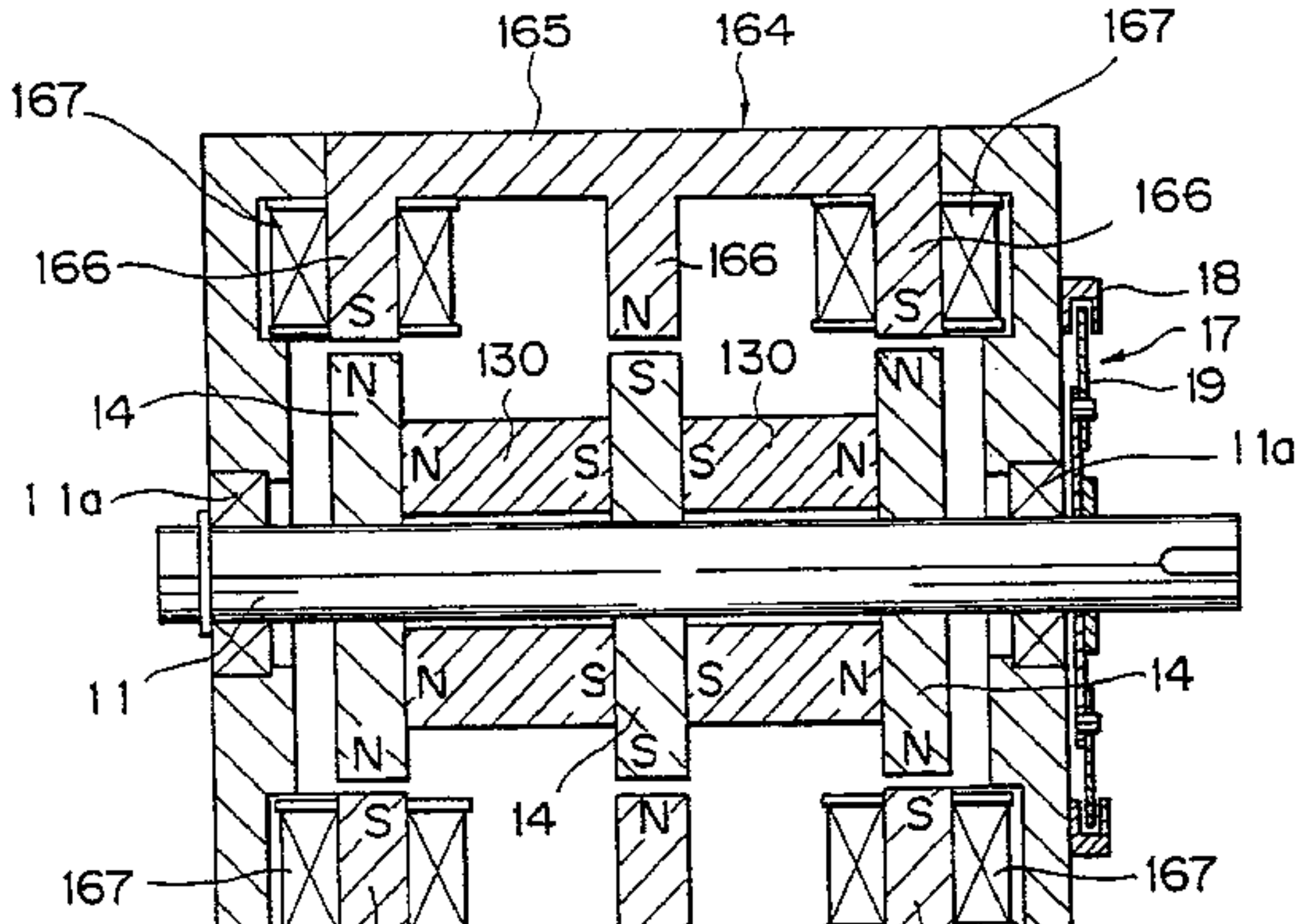


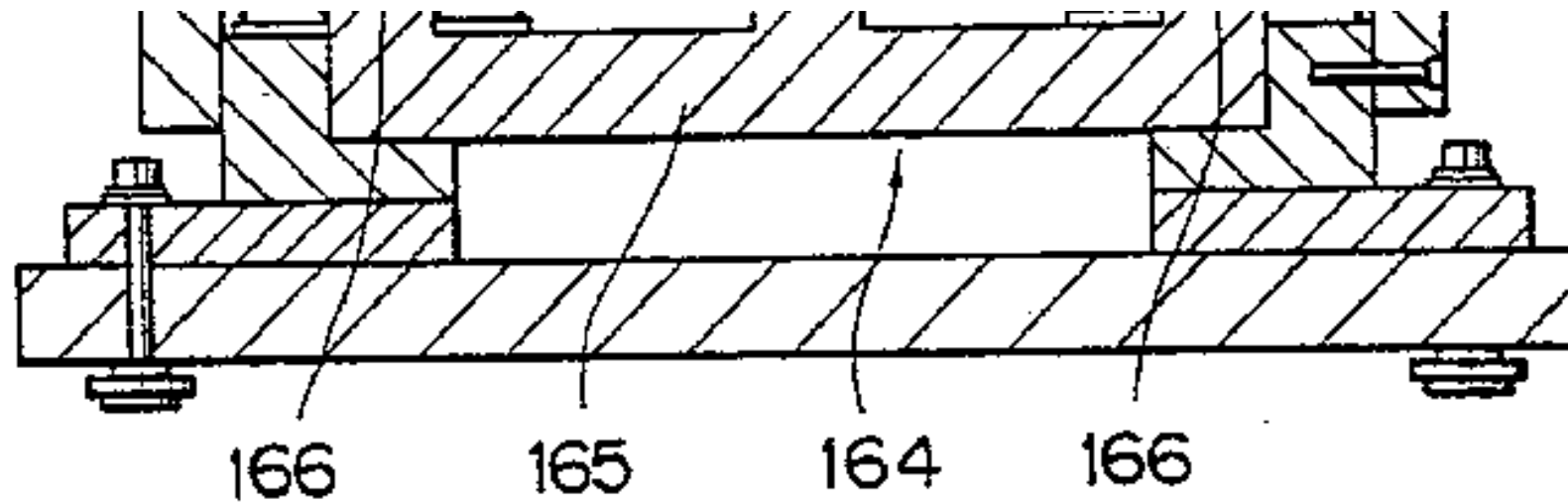


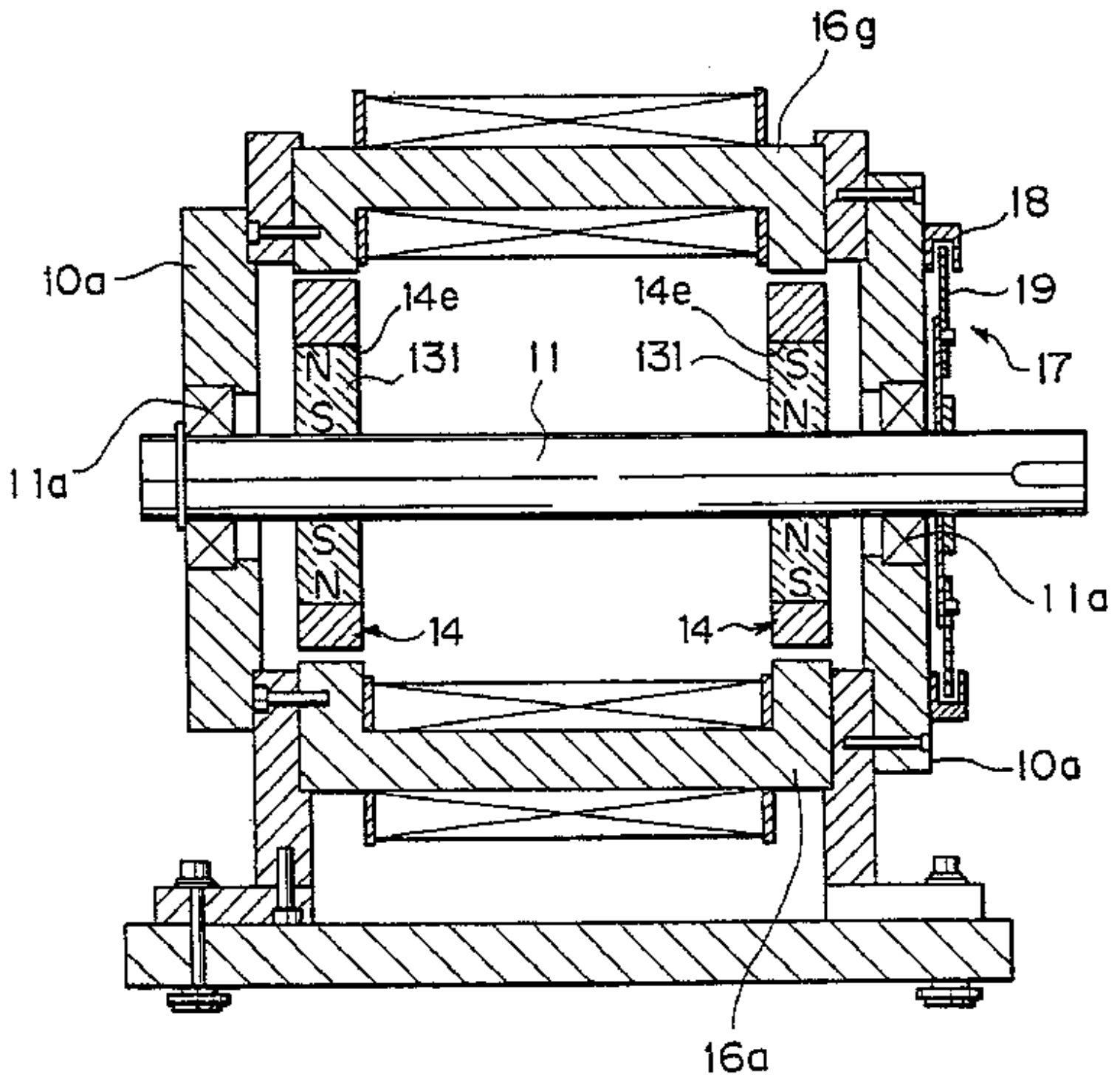




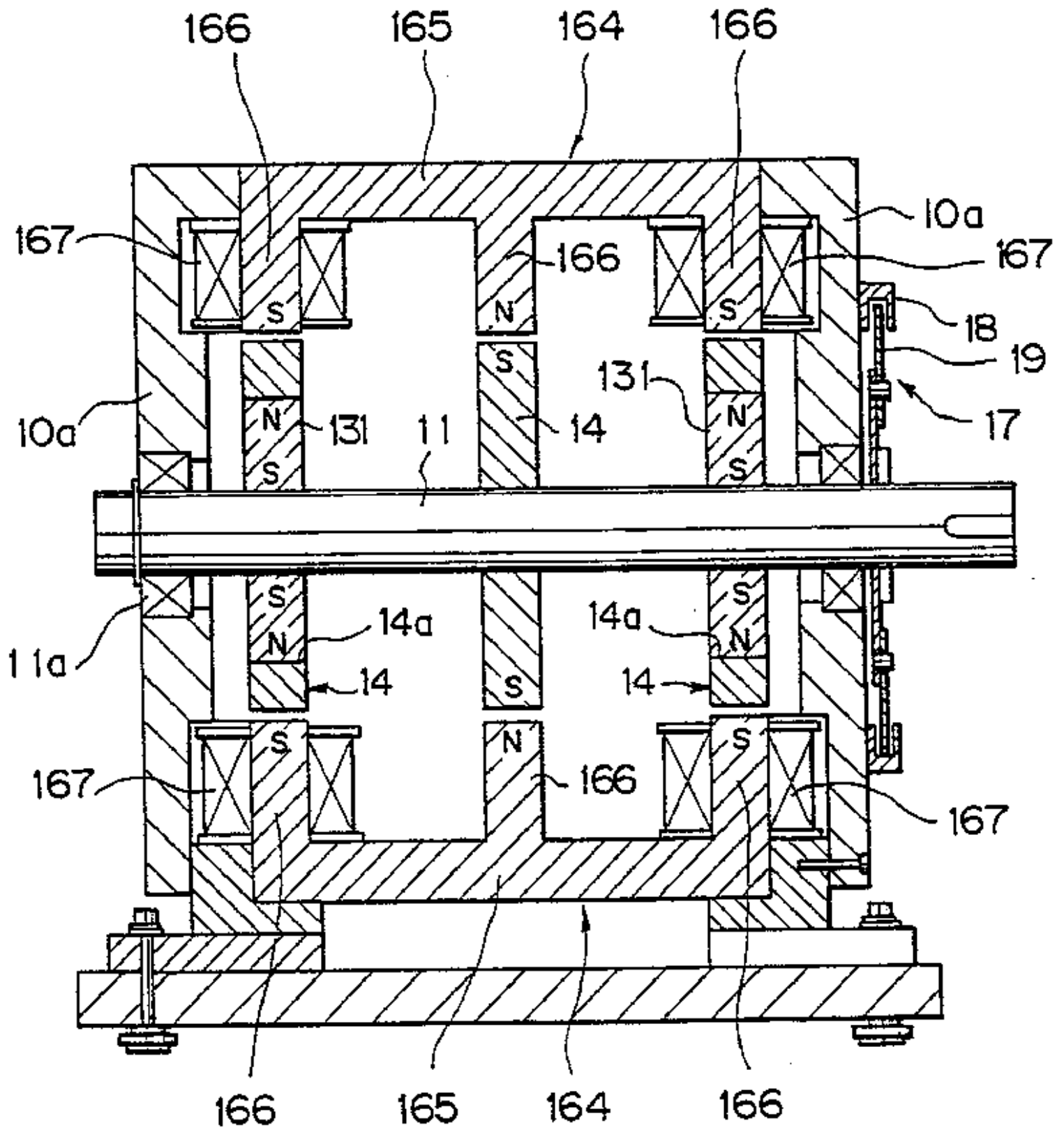


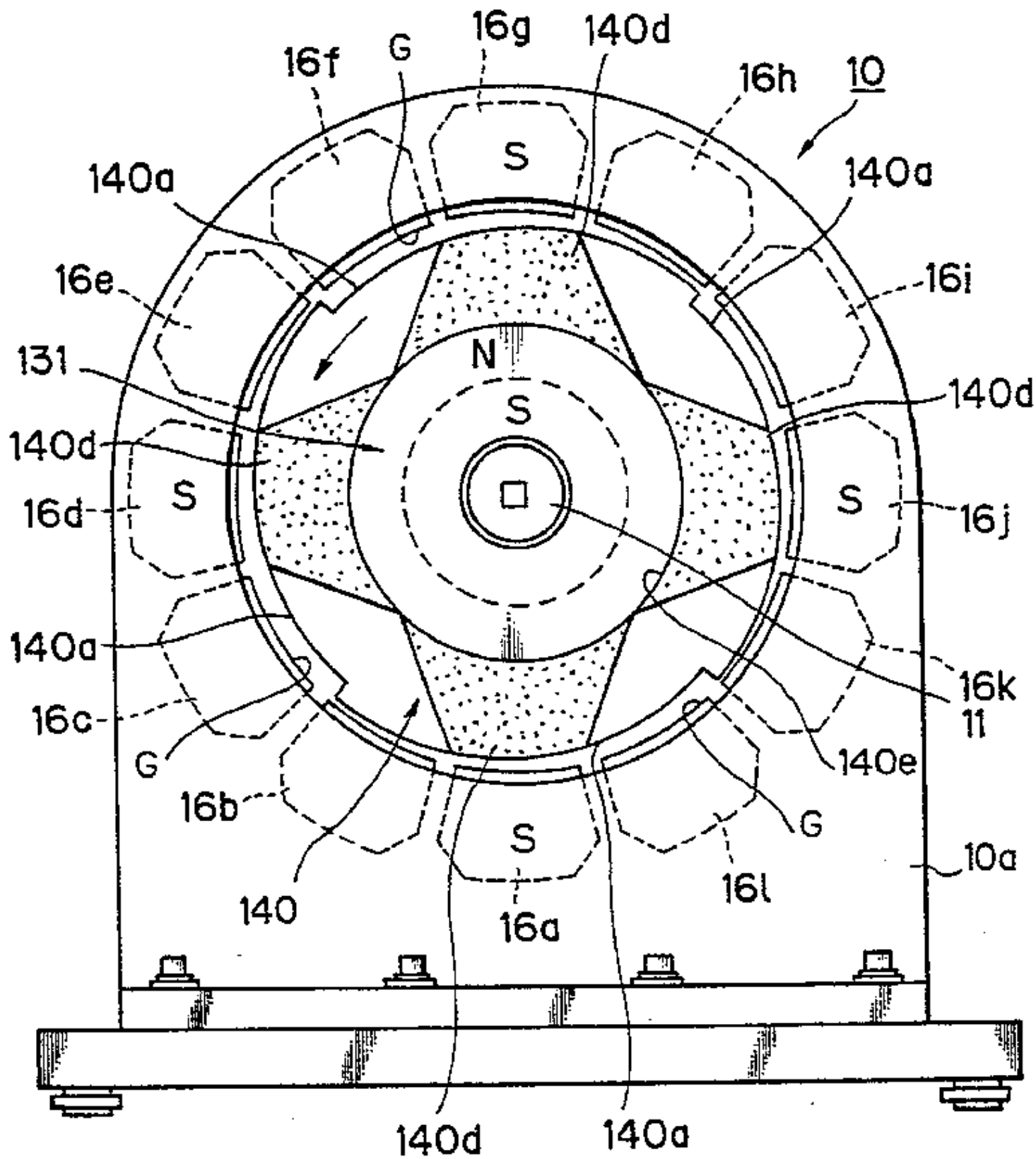


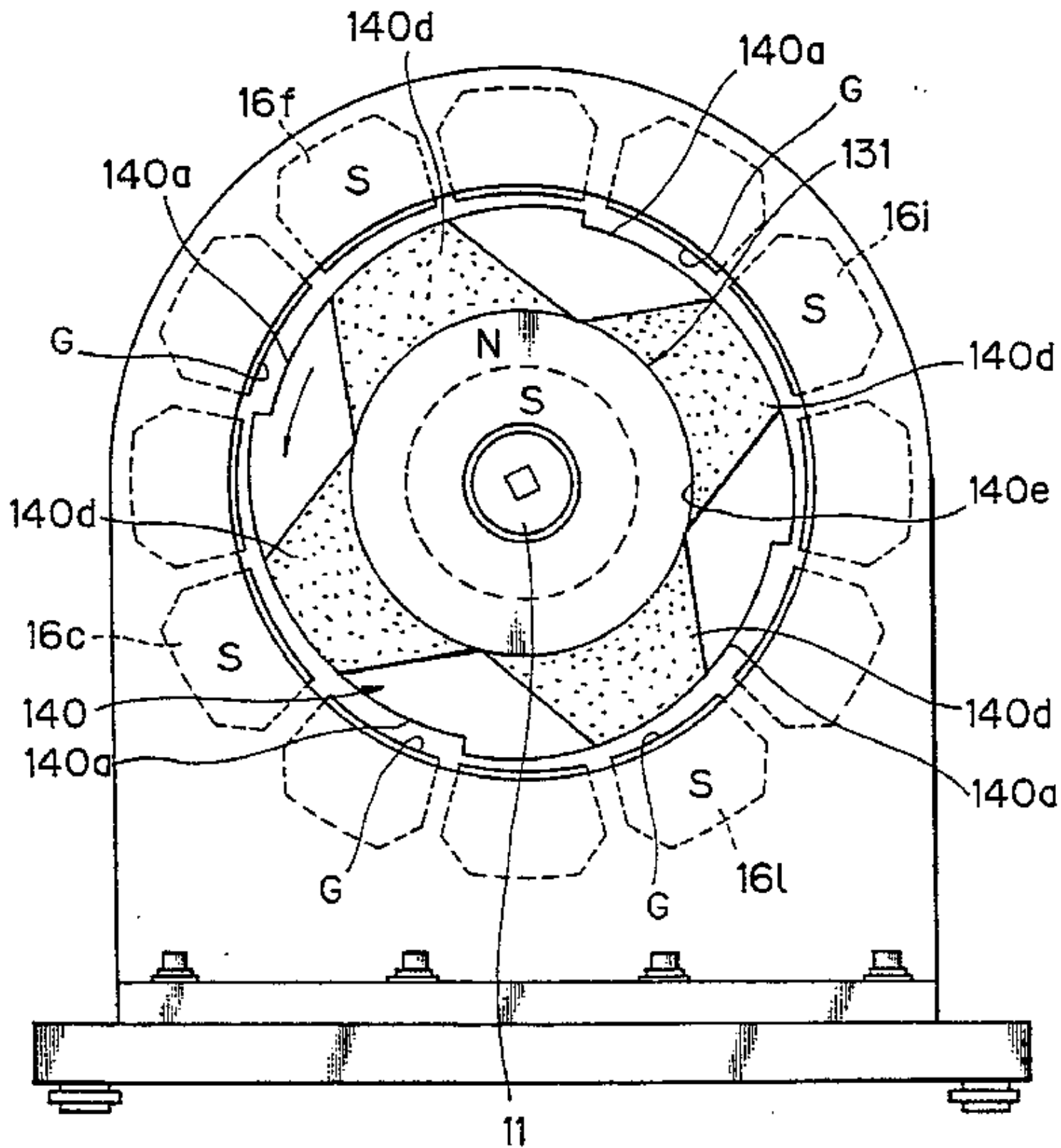


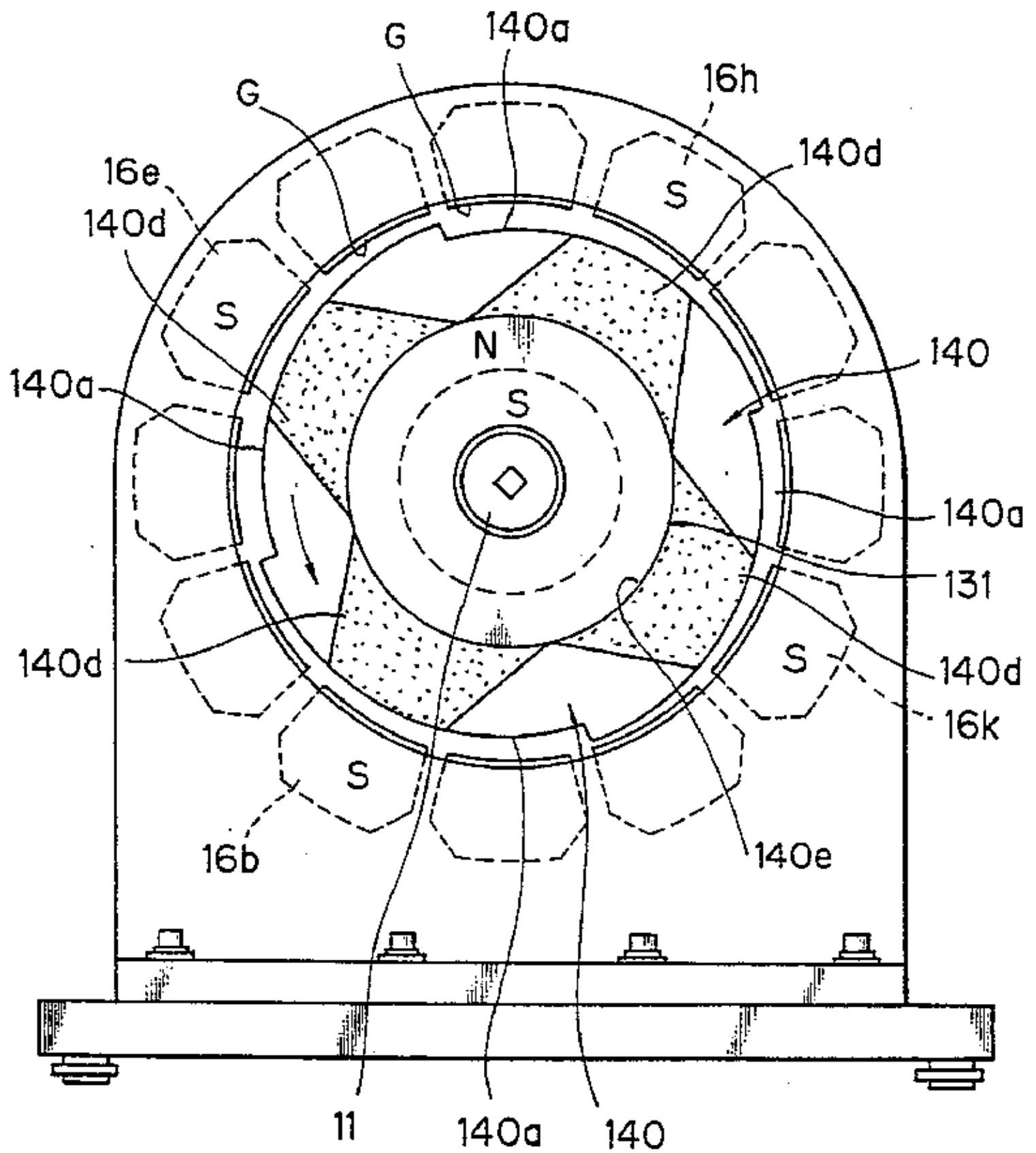


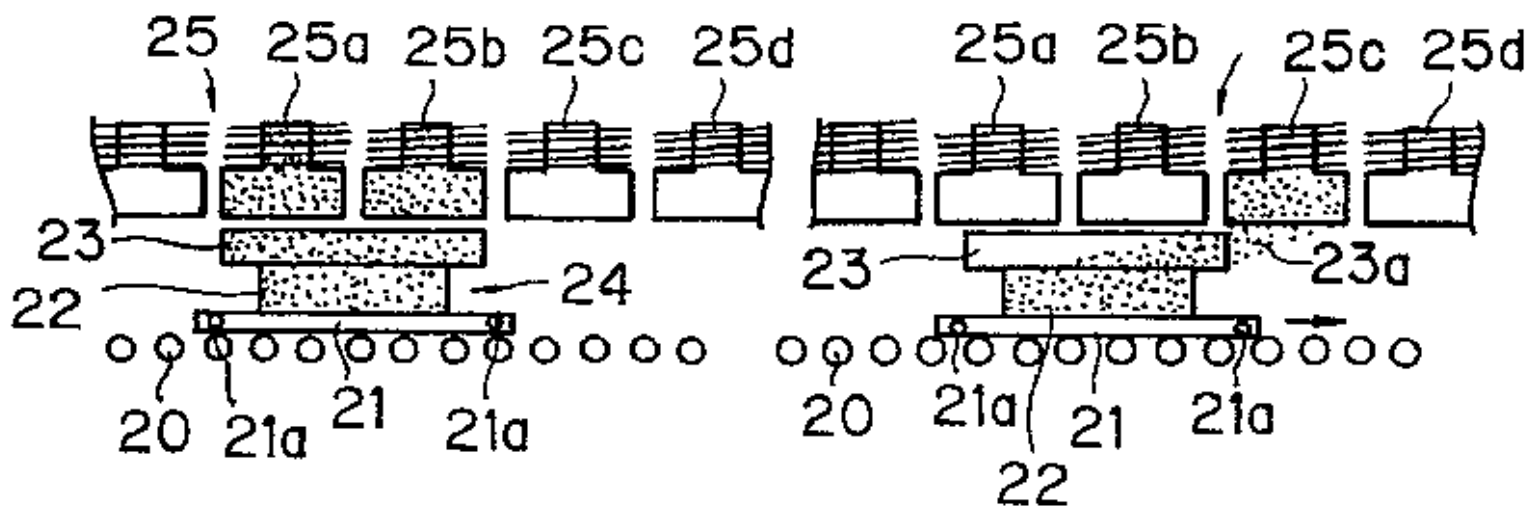


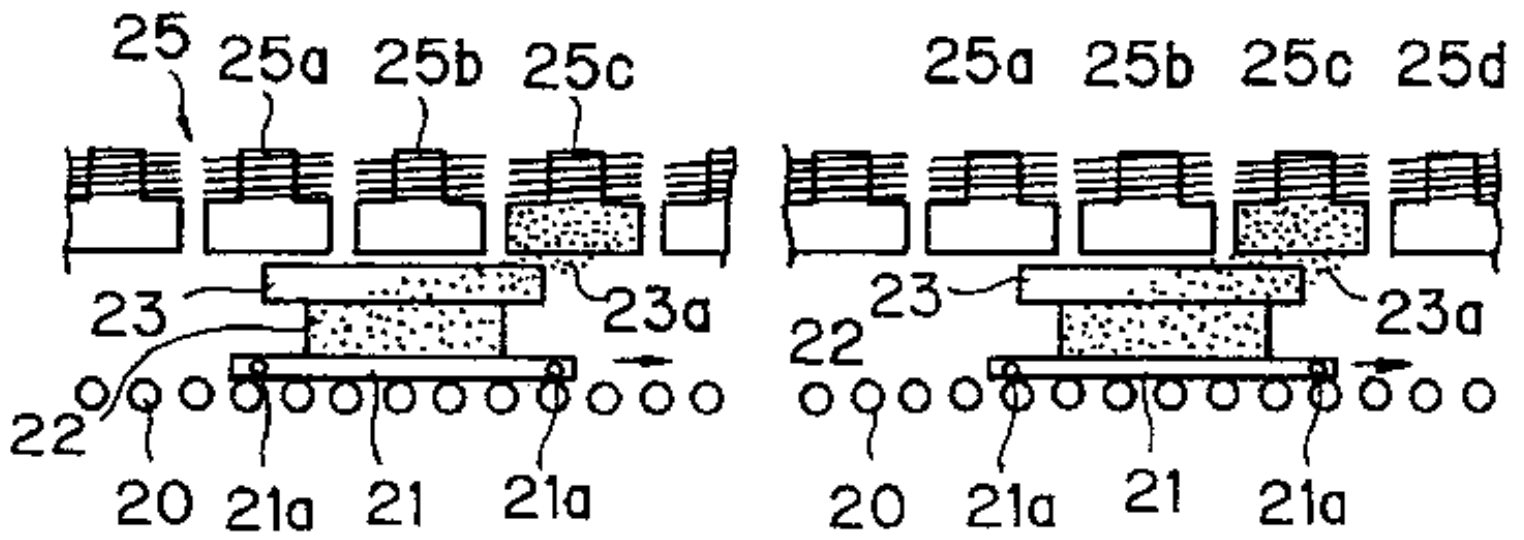


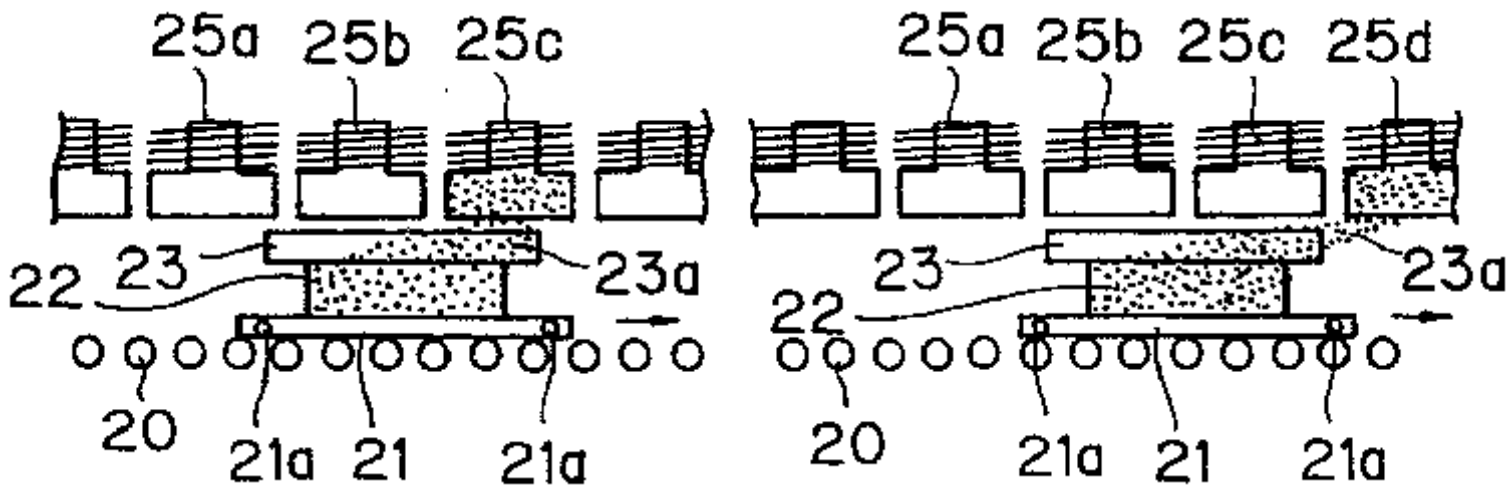


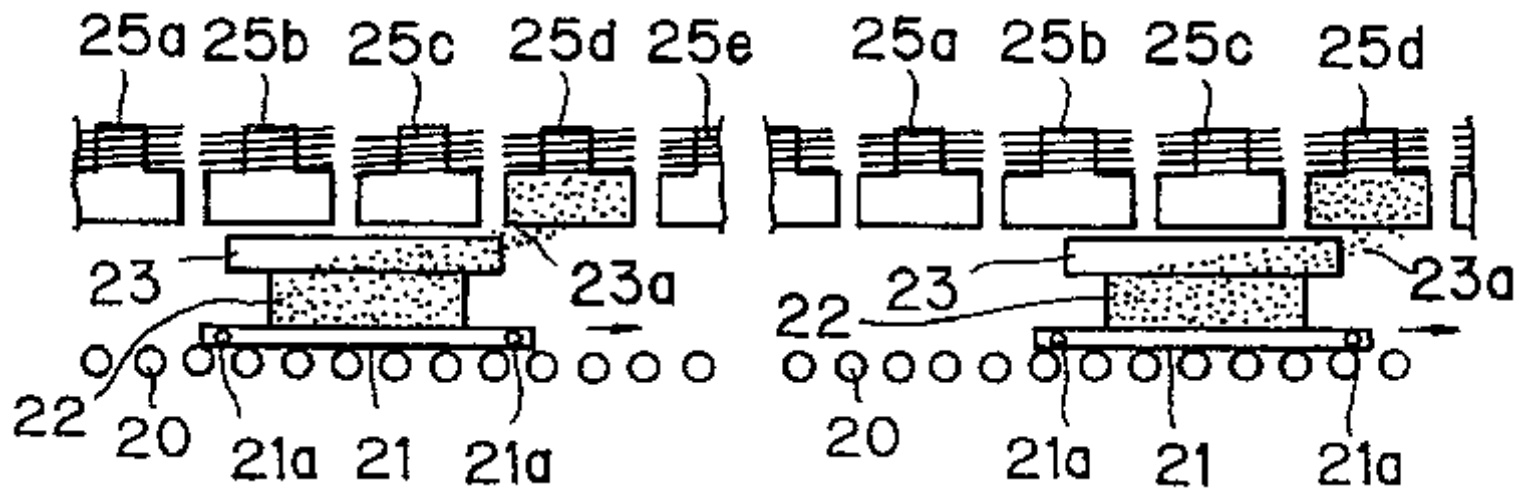




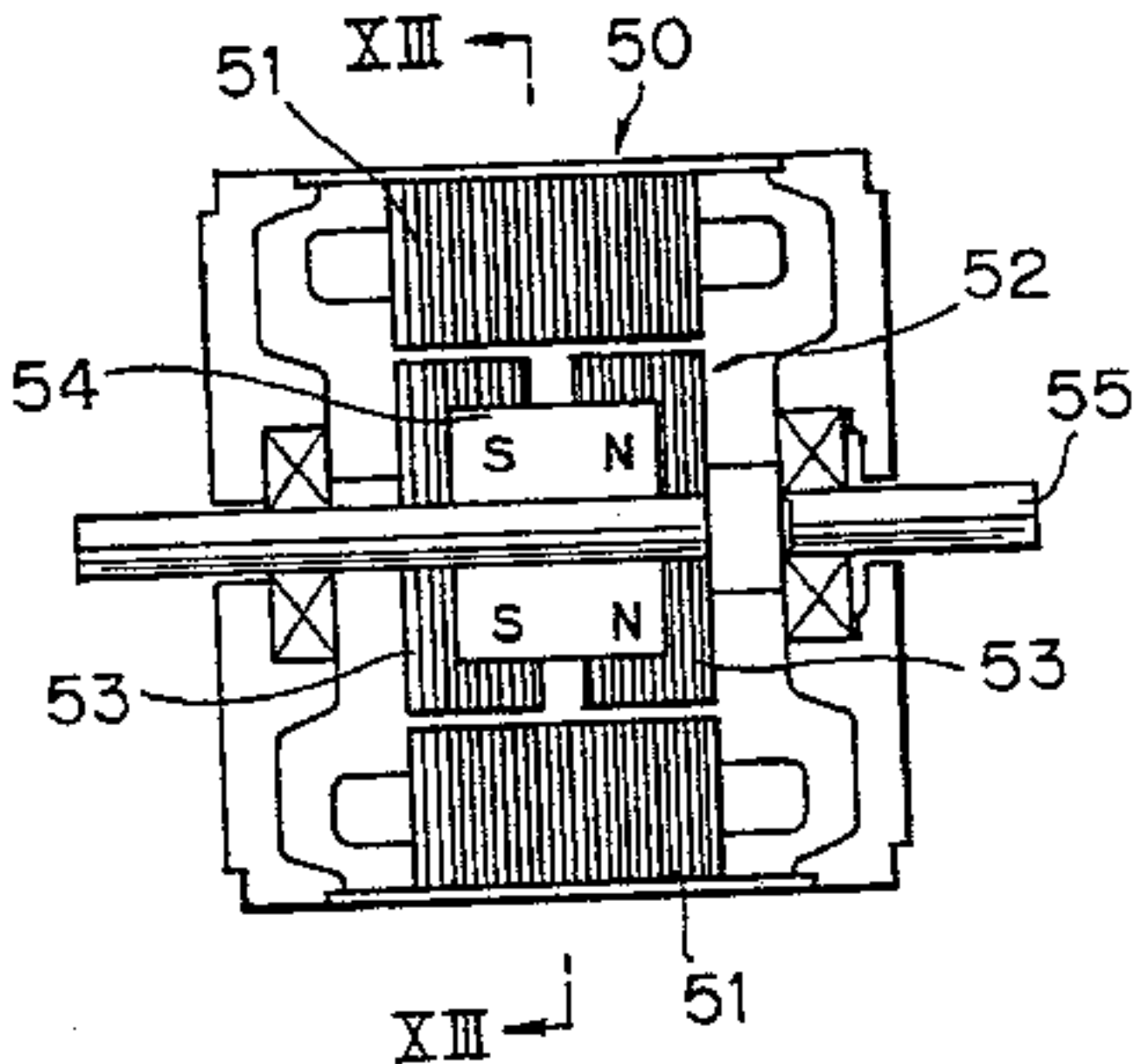


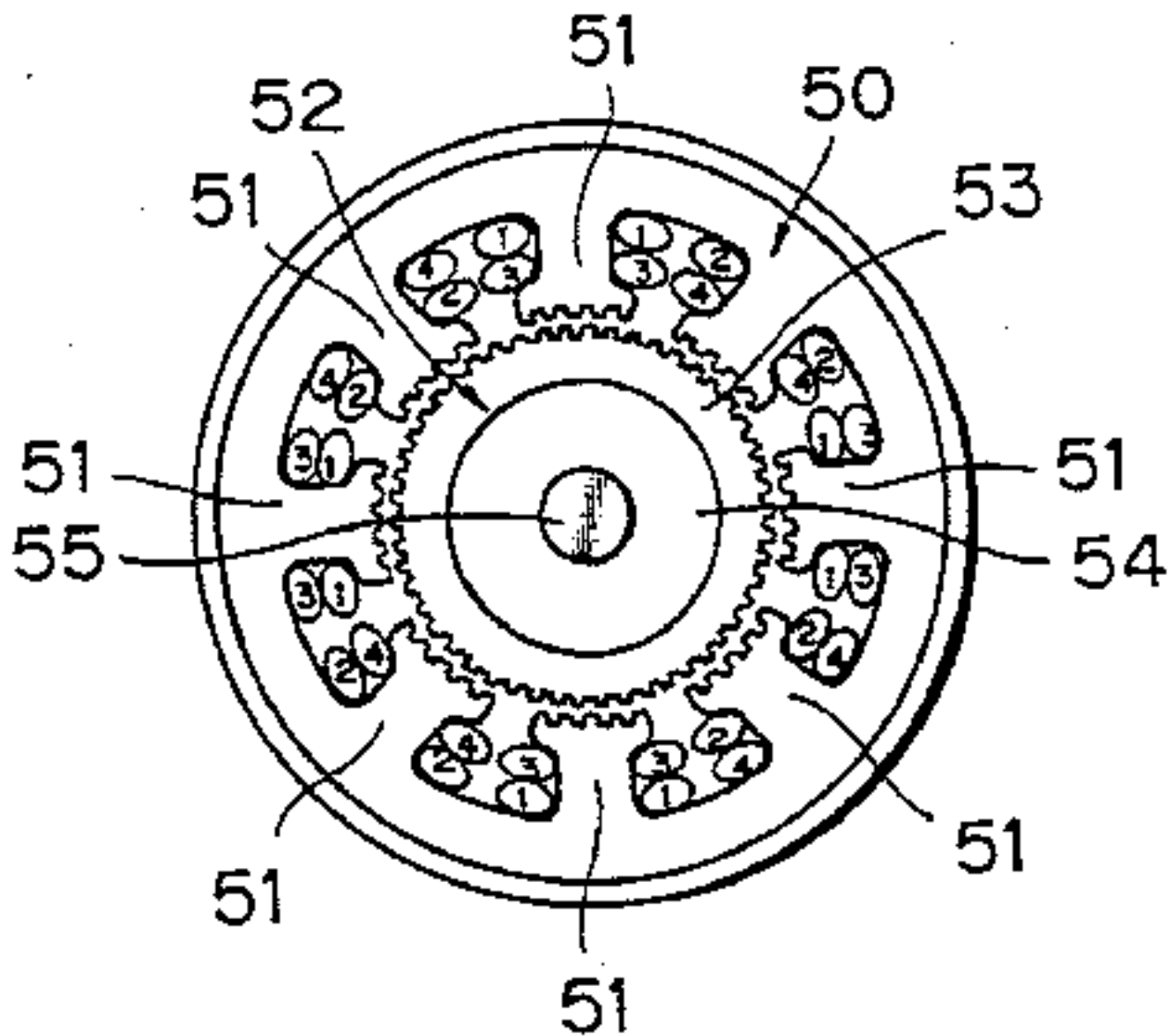


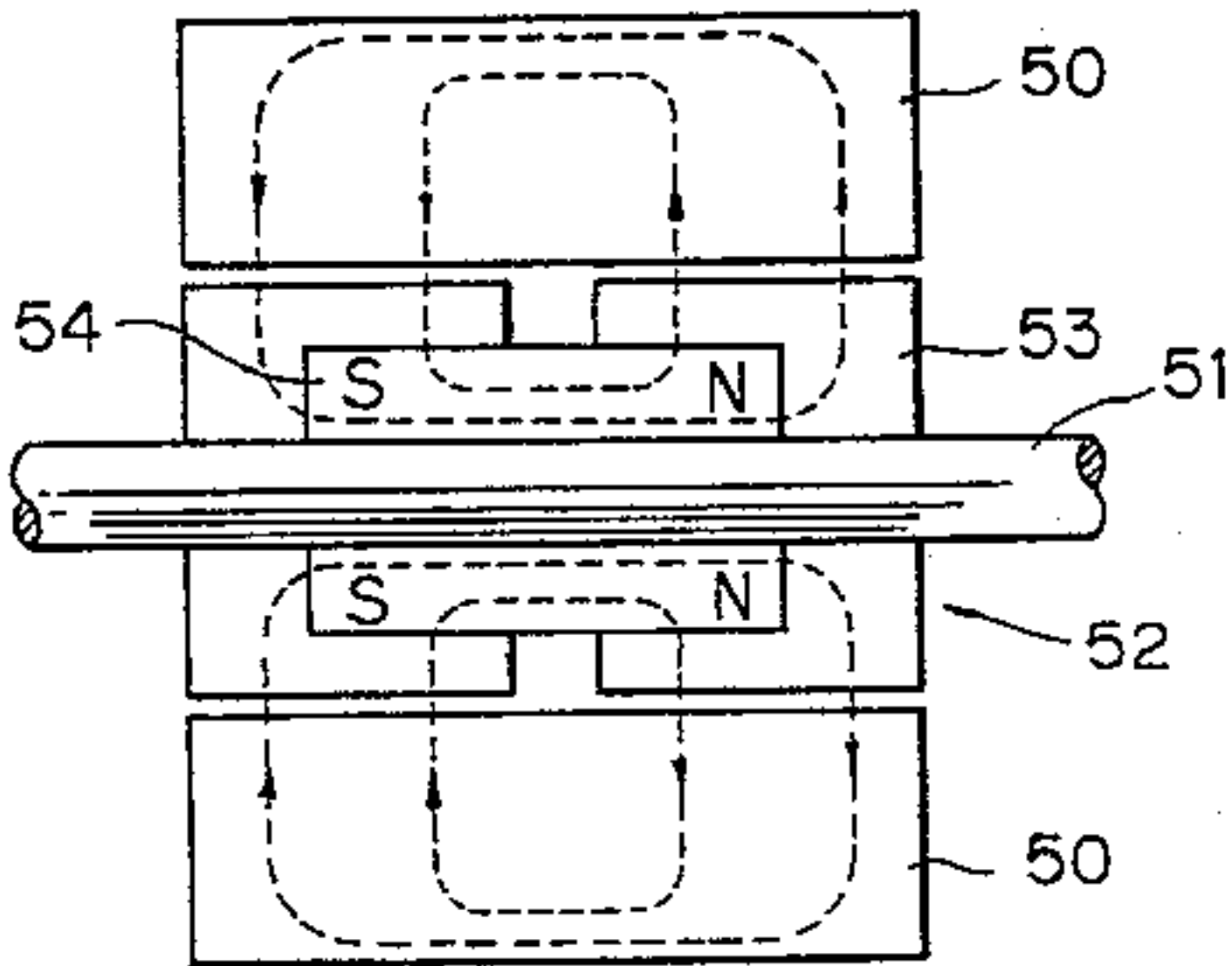


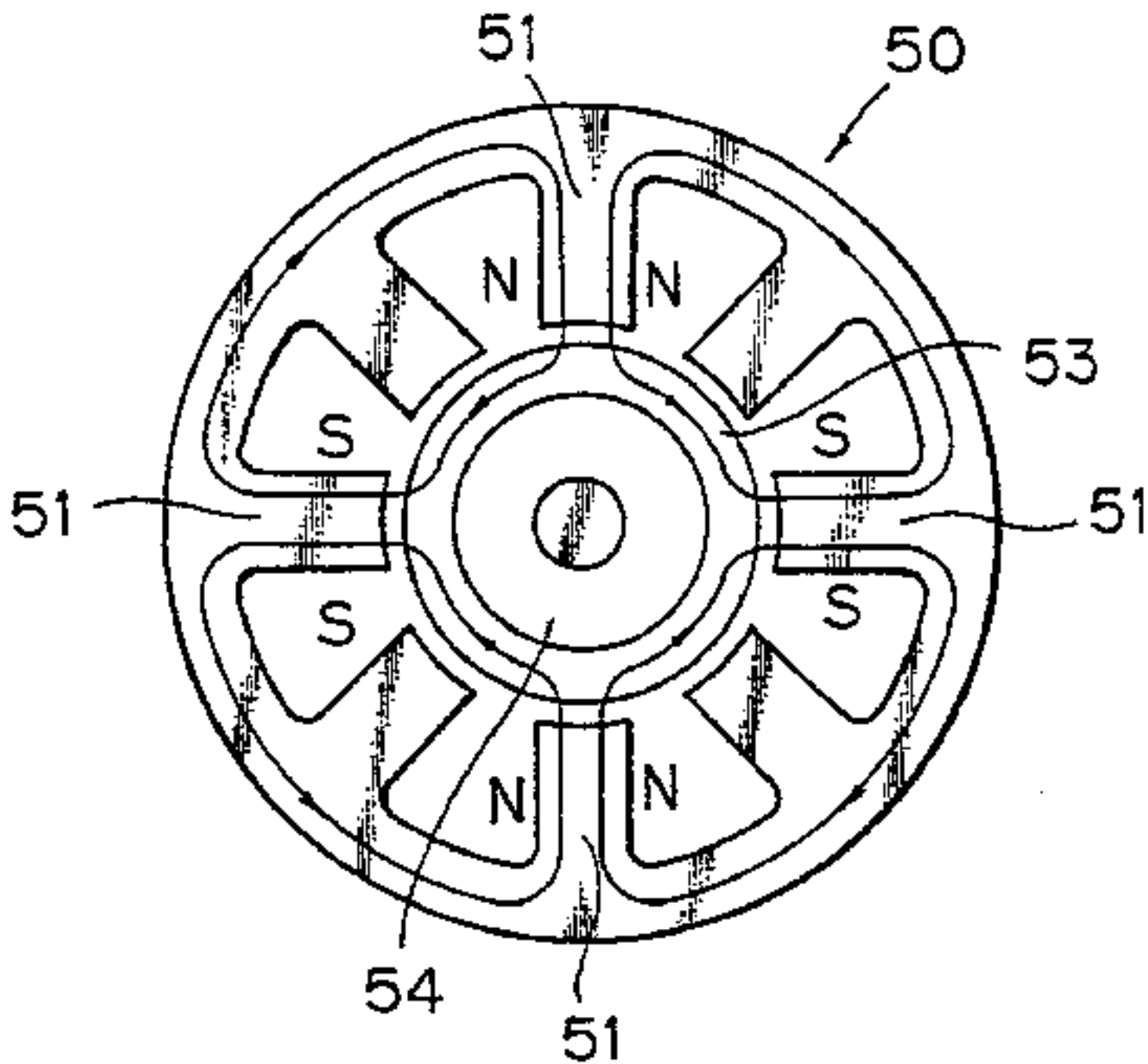


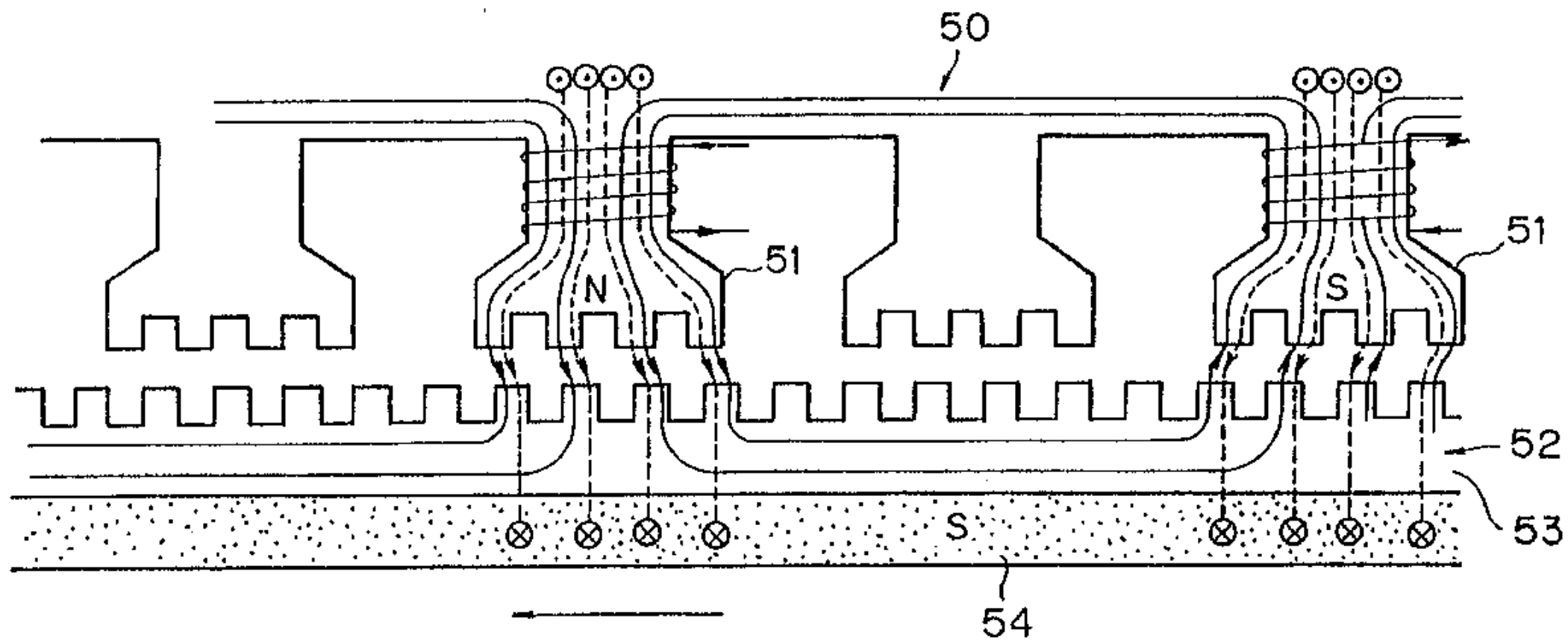


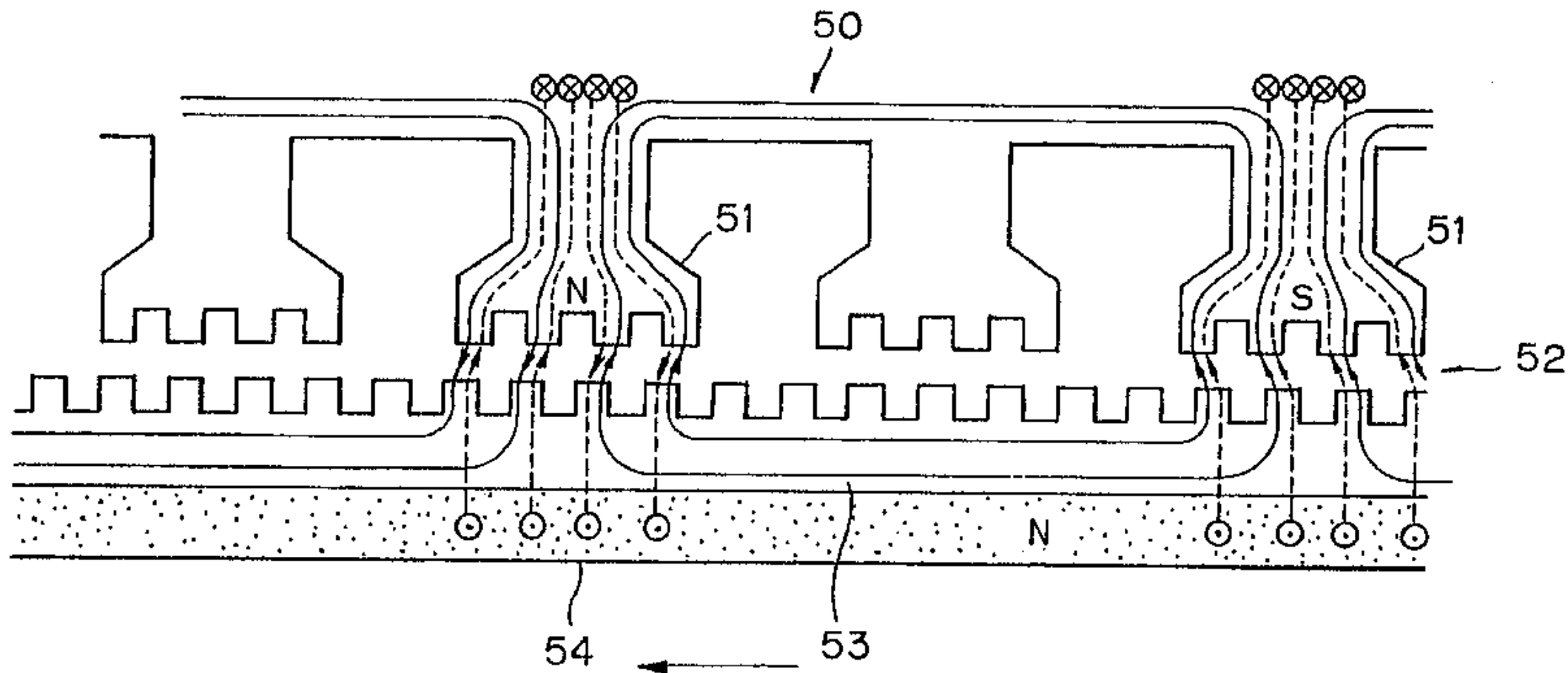












## [The Tom Bearden Website](http://www.cheniere.org/misc/astroboots.htm)

# The Astronaut's Magnetic Boots



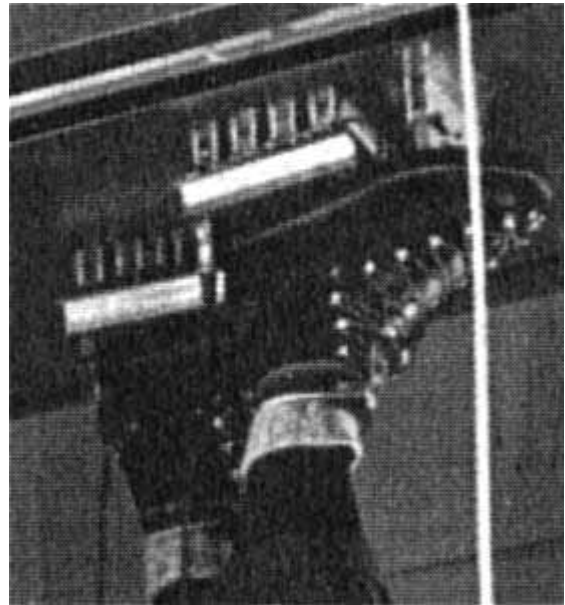
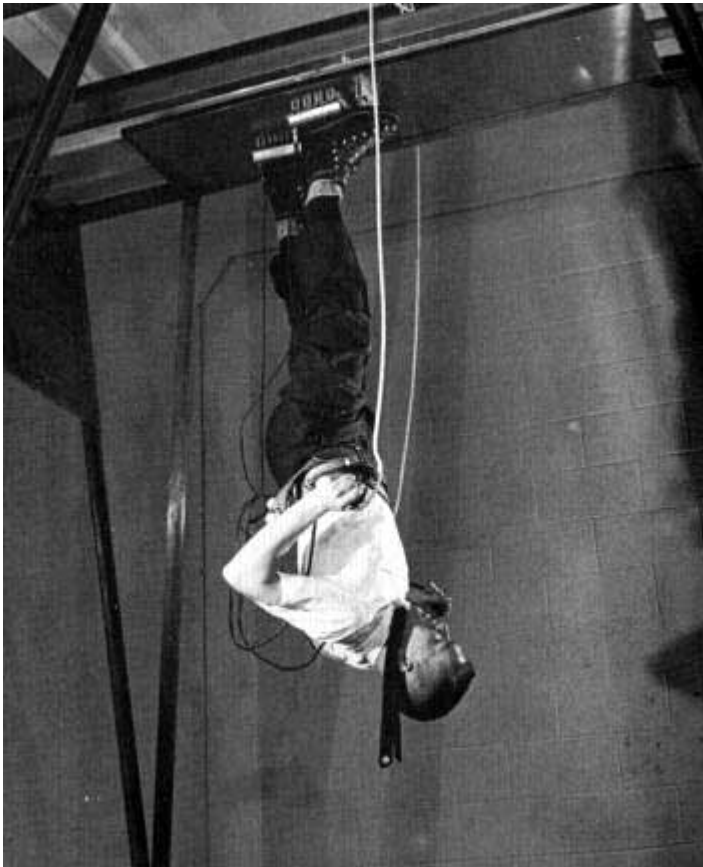
Try finding the original magnetic astronaut's boots that were developed by NASA. The original boots were excellent. For the acceptance tests, an engineer clad as an astronaut walked across the bottom of a steel beam in a high bay research area, upside down against the pull of Earth's gravity. He *stepped* as he walked, putting his foot "down" and then picking it "up".

There is no problem in finding magnets strong enough to hold the astronaut firmly in such an upside position. The problem with simple magnetic boots using such strong magnets is that, once the foot is planted, unless he is King Kong himself, the astronaut cannot pick up the foot again.

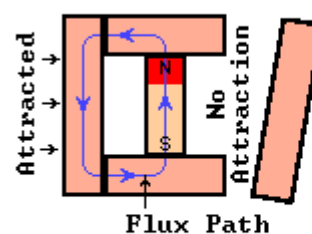
However, the Rarus boots completely solved that problem. If the permanent magnet fields are switched off for that foot that the astronaut wishes to lift, he can lift it easily and take another step. Then if the fields are switched on again as he places his foot down, this switching of the fields allows him to walk in a manner resembling normal walking, though a little slower.

To do that switching by normal "battery and coils" would be prohibitively bulky and heavy — and awkward to say the least.

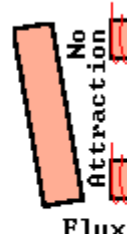
With the Rarus boots, the astronaut could pick up his foot by simply switching off the permanent magnetic fields easily. They switched on again when he placed the foot down. And he did not have to carry a huge battery around with him, to furnish enormous current to do that.



## FLUX SWITCHING



Once a magnetic circuit is made, little else is attracted to it



The flux be closed a single electrical

Tom Bearden comments: That is almost precisely one of the demonstrations of the potential clients, to prove to them that a magnetic flux arrangement can be switched, and the magnetic path will "remember" which is supposed to change it again

Well, it doesn't take a genius to see that, when you can switch a permanent magnet's fields easily, and the magnet also has a built-in memory as did the Radus magnets, then with a little ingenuity in switching one could use such switchable magnets to produce a self-switching, self-powered permanent magnet motor. The magnet, being a permanent dipole, is already a particular kind of "free energy generator", since it continuously gates magnetic energy directly from the vacuum due to its asymmetry in the energetic vacuum flux.

From the energy barons' viewpoint, those Radus magnets and Radus boots had to go, and go quickly. And go they did.

So NASA then developed the present "shuffler" kind of magnetic boots where the astronaut can't pull his boot loose from the surface, but must "scoot" his feet along in a sliding and painfully awkward fashion. That way, you see, no one can use the boot magnets — which now are just rather ordinary permanent magnets, without memories and without switchable fields — to make an overunity device or a self-powering permanent magnet engine.





In the originals developed by Radus *et al.* at Westinghouse, the magnetic fields themselves — from *permanent magnets* — were simply switched! And the magnets had a memory. (So far as is known, even today no one tells you that in many virgin magnets fresh from the factory, their very first use conditions them with a memory! *That fact can be used, e.g., to create magnets whose fields appear normal, but which deviate from the normal behavior of ordinary magnets, including produce anomalies in their magnetic fields.*

That subject — the deliberate induction of magnetic memory into a virgin permanent magnet with its first use — cries out for a sharp young graduate student to do substantial, pioneering research on that phenomenon, and do his Ph.D. thesis on it. There is a Nobel Prize waiting there for a future sharp young scientist who fully deciphers that "magnetic memory conditioning" mechanism. The entire subject of making permanent magnets with memories, and how to use such in operational systems, is still a largely unexplored, extremely obscure territory. In fact, most researchers are not even aware that the phenomenon exists. The energy barons like it that way!

Anyway, back to the Radus boots. With them, the astronaut could actually lift his boot and take a rather normal-like step.

So obviously those boots vanished only a few years after their development.

### How the True Magnetic Boots Information Was Recovered

It took some real doing to run down the true story of the vanishing Radus boots. Most of that marvelous work was done, unfortunately, before the big computer data bases really got going. Much of the earlier work is just not in there in the computerized databases. So one drew pretty much of a blank (except for the later "shufflers") when searching those databases on descriptors and terms related to the astronauts' magnetic boots.

An excellent researcher, John Reed, came to the rescue. John is a researcher of first rank. He actually found Radus' sister (Radus was deceased), who very graciously permitted access to some personal files Radus had left. With her permission, John copied the files. So that way much of the odd story of the *real* astronauts' magnetic boots was able to be reconstructed, before spin control was applied by you-know-who.

We certainly express our sincere appreciation to Radus' sister for her gracious assistance and kindness. We give full credit to John Radus for the invention of the switchable magnet and the conditioning of magnets with a memory. And we express our deep appreciation to John Reed for exerting so much effort to find something that was intended by certain parties to have disappeared from history, or at least to have faded into comfortable obscurity.

If you're interested in permanent magnet engines, be sure to check the [Radus' references](#) cited at the end of this article, and be sure to check the [Kawai](#) references.

## The Researcher Must Understand Nonlinear Magnetic Materials Phenomena

And as an aside to the beginning magnetics engine researcher who does not have a good knowledge of magnetic materials, here's some advice. You must get beyond the shallow view of "a magnet has a north and south pole and a field between them" and beyond the notion of just "simple magnetic domains" — you know, the notion that "big magnets are made of littler magnets." You must get much deeper into magnetic materials and their behavior.

Magnetic materials are highly nonlinear. It's not as simple as just "aligning domains". There are lots of nonlinear phenomena going on in magnets other than what is induced by simple north and south poles! The field from every permanent magnet has an internal, hidden, dynamic structure. There are *dynamics* going on *inside* the field of a permanent magnet, and *comprising* that field. There are at least 14 kinds of magnetism — and in fact, more than that if you check Ehrenhaft's work on magnetic monopoles, as validated by Mikhailov and Barrett, and if you check Evans' and Vigier's work on the B(3) scalar magnetic field that arises from a topological magnetic monopole and is evidenced in interferometry, e.g. and other experiments.

Magnetism is intimately connected with the spins of the fundamental particles, and you need to understand that area as well. So unless you wish to be a very naïve experimenter, first do some heavy homework in the areas of magnetic material phenomena, different types of magnetism, multivalued magnetic potentials, magnetic monopoles, interferometry, spin waves and phenomena, etc. If you can find it, a very good book (one that's relatively simple for engineers and is straightforward and understandable) is the out-of-print book by Cullity (cited). If you're really serious, contact the publisher and get permission to legally reproduce it at the copiers for a small fee, as we did. You'll be very glad you did. It's probably the single most *understandable* book of its kind. Another very good book to obtain is Burke's "Handbook of Magnetic Phenomena" (cited). An extremely useful "quick reference" book for one's pocket is Kaganov and Tsukernik, "The Nature of Magnetism" (cited).

## Why the Astronauts' Boots Were Changed

But back to the astronauts' boots. Hangar and Rosener (cited) will fill you in on the present "shuffler" boot. Just forget those; they are worthless to you as an enterprising overunity systems researcher. Reading Radus' work (cited) will clue you in on the earlier, far better boots.

If you dig out some new reference background on Radus' work and the *real* astronauts' magnetic boots, please share it with us, and we'll put it here in this section for everyone.

Why do you suppose NASA replaced that excellent Radus boot with the far inferior "shuffler" kind later?

You see, if you can easily switch the fields of a permanent magnet as you wish, and make that magnet also have a memory that you deliberately conditioned into it, you could also build a permanent magnet self-powered engine by adapting such memory (asymmetrical behavior) and switching. It's perfectly

permissible by the laws of physics and the laws of thermodynamics, because one is using an open dissipative system far from thermodynamic equilibrium. Any dipole such as a permanent magnet is a legitimate open system freely receiving energy from its environment (the active vacuum) and re-emitting some of that energy in usable Poynting energy flow form.

The other compelling reason is that you don't use electrical currents back through the source dipoles to kill them! Zounds! That means you can have one half the solution already accomplished from the start; you don't have "spent current" to have to force back through the dipole or shunt it around freely by some extraordinary means. All you have to worry about is *understanding* and *very clever and precisely timed switching*. (And it does have to be clever; let's not belittle the skill and perseverance required to achieve that task!)

But the Radus boots represented a potent threat to the energy barons and energy cartels of the world. Therefore those "field switching" boots had to go. And go they did!

So those trainloads of coal and fleets of oil tankers kept on coming. And the byproducts of all that hydrocarbon combustion kept right on polluting the cities and the planet.

Here is an area crying out for Congressional and Senatorial action. Why not force some of those "government servants" we taxpayers send so many billions of dollars to, to go back in there and compile all the available Radus boots information and data from NASA? And openly release it?

Hey, environmental activists! Are you listening?

---

### References:

- A. W. Hangar and A. A. Rosener, "The use of permanent magnets in zero-gravity mobility and restraint "footwear" concept," *IEEE Transactions on Magnetics*, Vol. MAG-6, No. 3, Sept. 1970, p. 464-467. These crude "shuffler" boots are quite a contrast to the elegant Westinghouse/Radus "stepping" boots earlier developed and used by NASA.
- "Human fly has magnetic sole," *Electrical Engineering*, Apr. 1963, p. 294.
- Raymond J. Radus and William G. Evans, "Apparatus Responsive to Direct Quantities," U.S. Patent No. 2,892,155, June 23, 1959.
- R. J. Radus, "Permanent Magnet Flux Transfer Principle," Internal Westinghouse paper, date unknown; ——— "Permanent-Magnet Circuit using a 'Flux-Transfer' principle," *Engineers' Digest*, date unknown (July 1963??), p. 86.
- J. Astleford, Jr. and R. J. Radus, "Distribution Transformer with Zero-Percent Impedance," *Westinghouse Engineering*, 23(5), Sept. 1963, p.

148-151; ——— "Zero Impedance Distribution Transformer," *IEEE Transactions on Power Apparatus & Systems*, 83(9), Sept. 1964, p. 918-926.

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Thanks to Darryl Morris in Australia for providing the photos of the original Radus boots from the publication:

"Attraction and Repulsion"

Author: Malcom McCaig Ph.D.

Publisher: Oliver and Boyd ltd - 1967

At the time of writing, McCaig was the assistant Director of Research for the 'Permanent Magnet Association', Sheffield.

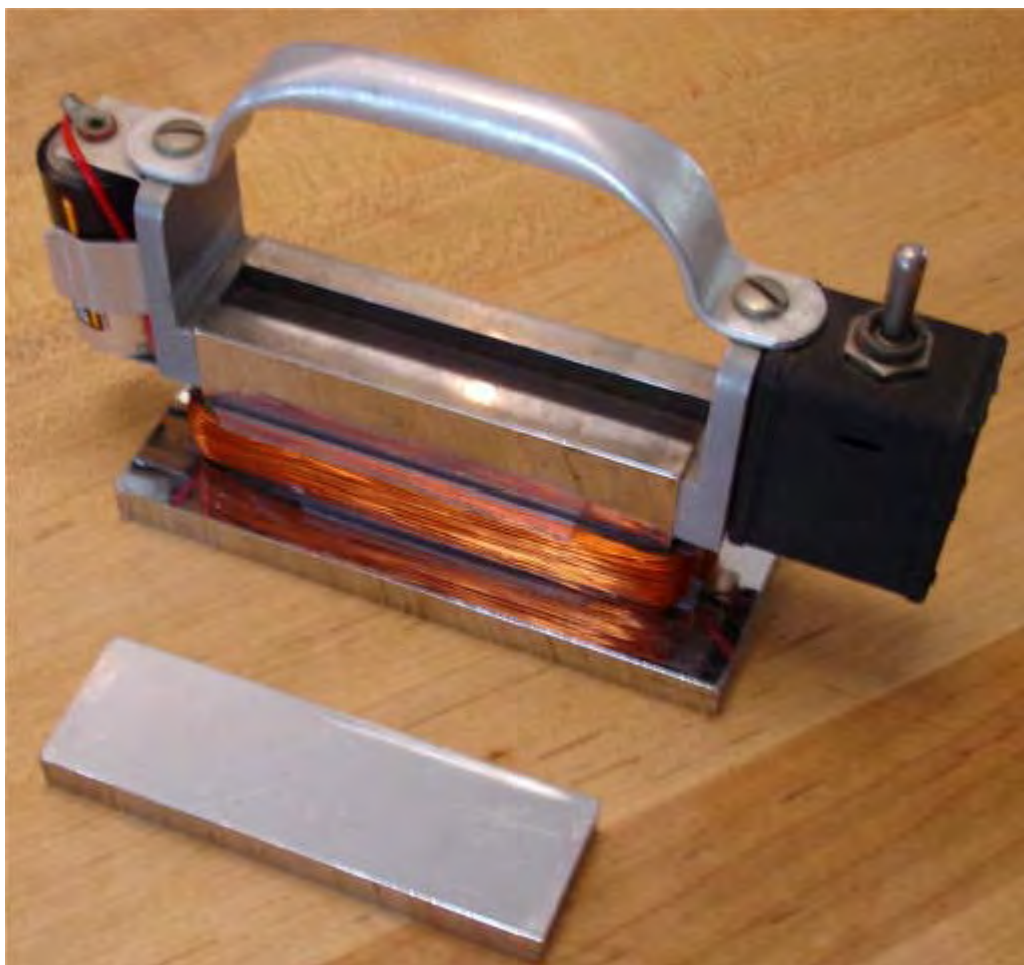
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### **Additional information from Radus family members**

Regards to T. E. Bearden.

This device is what the family believes to be a portable demo of Dad's permanent magnet, with the "sandwich" and coil resting on one of the attached plates.

Simple, but elegant, as was much of his work.

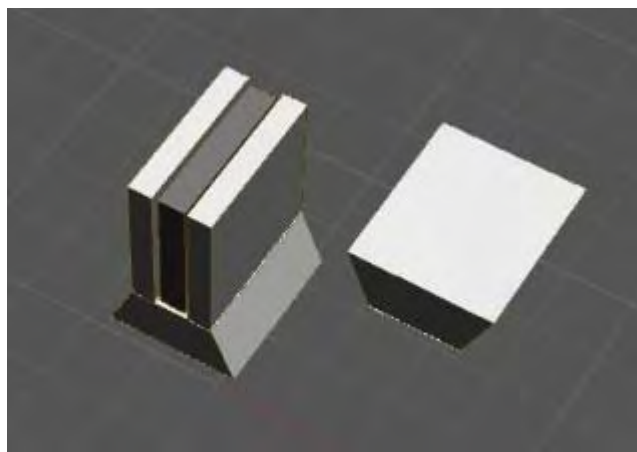


Photos of the original boot

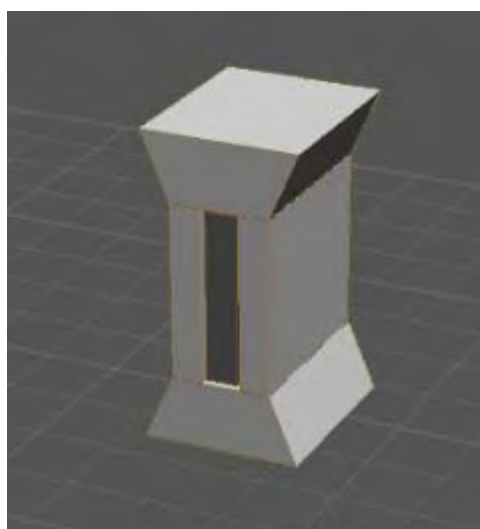




These are drawings of models that we played with as children. The central sandwich is about an inch square. One of my brothers (out of town) has the actual. My son did the drawings from my description. He is trying to replicate the model.



They functioned the same way as did the powered models (shoe and battery powered test that I had sent previously). One wedge pulls off easily, with an increase in force required to move the second piece. No electrical power required.





**TOWARD A NEW ELECTROMAGNETICS**  
**PART III: CLARIFYING THE VECTOR CONCEPT**

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TOWARD A NEW ELECTROMAGNETICS

PART III: CLARIFYING THE VECTOR CONCEPT

by

T. E. Bearden

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# [The Tom Bearden Website](http://www.cheniere.org/books/part3/implications.htm)

## TOWARD A NEW ELECTROMAGNETICS

### Part III: Clarifying the Vector Concept

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#### -- IMPLICATIONS --

Some of the fundamental concepts of the new Tesla electromagnetics are presented. The new concepts have startling implications:

(1) No force or force field exists as such in vacuum.

(2) Hertzian (transverse) electromagnetic waves do not travel through the vacuum, just as Tesla stated.

(3) Forceless, massless Tesla (scalar) longitudinal waves actually transit the vacuum. Tesla called them "electrical sound waves."

(4) At present there are actually four different FUNDAMENTAL TYPES of vectorial entities in physics, erroneously confused as one and the same.

(5) Tesla longitudinal scalar waves are also "time" waves and can affect anything and everything that exists in time.

(6) The fundamental constants of nature (which exist in time) can be altered by Tesla scalar waves, which oscillate the values of the constants.

(7) Every vector and scalar has an internal substructure, which can be independently affected and changed. This allows the direct engineering of the virtual state and the vacuum itself.

(8) All observable forces (electrical, mechanical, gravitational, etc.) arise in, on, and OF the actual substructure of the "accelerating mass particle" itself, not as an "external" massless force or force field applied "to" a mass .

(9) Physical reality itself -- and the "physical laws of nature"

can be deliberately changed and engineered.

(10) All "physical reality" is totally internal to the physical changes of the mass particles of the detector system of the observer.

(11) Relativity's speed of light limitation applies only to the changes of the basic mass particles of the detecting instrument.

(12) Detection of superluminal effects cannot be accomplished by a "single stage" or "single shift" (single interaction) detector .

(13) Detection of superluminal effects is permitted by "multiple stage" or "multiple shift" interactions where the last interaction is a conventional interaction of photon vs. detector particle. (The [two-slit apparatus](#) for detection of electron diffraction is an example. First, the superluminal DeBroglie waves interact with the slits, which are "tuned" toward the electron's DeBroglie wavelength. The interaction with TWO slits produces subluminal interference effects, which then interact back upon the physical electron. The apparatus is thus an electron interferometer capable of detecting superluminal waves by a two-stage interaction).

(14) Interference is the most common first-stage superluminal interaction to accomplish "downshifting" superluminal entities to luminal or subluminal velocities. Superposition of superluminal "phase" waves (such as deBroglie waves, which individually always move faster than the speed of light) interferes the waves to create a subluminal group velocity, which may then interact with an ordinary mass particle in the detection system.

(15) Any otherwise physical vector must exist as an unzipped (segmented) or "shadow" vector in vacuum. "Radiation" of a vector EM wave from the electron gas in an antenna into vacuum results in the "choking off" of the mass of the transversely oscillating electrons in the antenna. Since the spinning electron mass is the "zipper" that makes or comprises the physical vector in the first place, this throttling of the mass flow unzips the E and B vectors, leaving whirling (massless magnetic scalar potential) segments of massless charge flux (massless electrostatic scalar potential). This unzipped whirling pattern of charge flux (scalar massless  $A/\emptyset$ ) is what radiates into vacuum and propagates through it. This is a special kind of

scalar wave pattern, not a physical or vector wave.

(16) The spin of a charged particle is the mechanism for integrating or "zipping together" the individual virtual fragments of a shadow vector into a real (observable) vector. For "uncharged particles" such as neutrons, it is the spins of its virtual charged components. that accomplish the integration or zipping.

(17) All fundamental charged particles are constantly accelerated. There is no such thing as an "unaccelerated" particle, except as a gross average over time or length. Further, all of them are spinning.

(18) All changes to and from a physical vector or scalar system must arise in and come from its own internal substructure, which is zipped to its spinning particle of mass.

(19) All fundamental particles are charged internally. That is, they are dynamic assemblages of smaller charged particles. If the average sum of the total internal charge is essentially zero over some finite, small increment of time, the particle is externally uncharged. If the sum is not essentially zero, the particle is also externally charged.

(20) There are no static physical things in existence. In physical reality, something appears "static" only at a particular level. Upon sufficiently fine examination, it is composed of accelerating parts, and thus comprised of "fluctuations."

(21) Since (a) the basic physical (mass) vector consists of a "smeared particle," where particle and smear are inseparable, (b) the conceptual particle also is accelerated, and (c) the "smearing" is for a small increment of time and a small increment of length; then the basic constituency of "physical reality" is inseparable "force x time x length," or action. The basic "quantum" of physical change is thus comprised of action.

(22) Since to "detect" we must "stop" the action, separate or split the quantum into two pieces ("canonical" pieces) , and compare (measure) one piece by throwing away the other, then each physical observable must have a differential operator (the "separating agent") corresponding to it. This accounts for the fundamental postulate of quantum mechanics whereby every observable has a corresponding operator. Further, since what remains is totally relative to what was split out and thrown away, physical change

is totally "relative." This accounts for the fact that observed reality is relative, each part to each other.

(23) As a special case, we may assume that we can evaluate a physical change at a point (without length). If so, when we discard length, the remaining basic vector is momentum. This approximation holds only so long as the system to which it is applied essentially does not change over the quantal fragment of length discarded -- i.e., it holds for the linear case. Conservation of momentum, then, is violated when sufficient nonlinearity in length is present.

(24) As a second special case, we may assume that we can evaluate a physical change in a spatial manner (without time). If so, when we discard time, the remaining basic vector is energy (has the units of energy or work). This approximation holds only so long as the system to which it is applied essentially does not change over the quantal fragment of time discarded -- i.e., it holds for the linear case. Conservation of energy, then, is violated when sufficient nonlinearity in time is present. Since a "virtual change" a priori is defined as a total nonlinearity in the observer's quantal time increment but not outside it, then virtual interactions can and do violate conservation of energy within that time increment, but not out of it -- so long as the time interval itself is considered linear. If the time interval is sufficiently nonlinear, then the virtual change may result in violation of the conservation of energy externally to the time increment. In that case, an "observable change" results .

(25) As a third special case, we may assume that we can evaluate the "instantaneous value" of a physical change at a static point in space. To do so, we must discard both time (to be instantaneous) and length (to be at a spatial point), and the remaining basic vector is force. This approximation holds only so long as the system to which it is applied essentially does not change over the quantal fragment of time or the quantal fragment of length discarded. Conservation of force, then, is violated when sufficient nonlinearity in time or length is present.

(26) A new conservation of energy law is required, one which unites the present conservation of energy law with an altered form of the conservation of charge law. Briefly, the total equivalent of mass,

observable energy, and massless charge (anenergy) is conserved.

(27) All AL and At fragments are produced and destroyed one at a time, in the action fissioning of a single quantum of action (detection process). Each  $\nabla L$  and  $\nabla t$  is discretized but not quantized. Since quanta do not superpose, the "external universe" is continually created and destroyed in the detector's mass system, one quantum at a time, at a very high rate. This interpretation gives physical meaning to the creation and annihilation operators of quantum mechanics.

(28) Since the detecting mass system is itself continually created and destroyed one quantum at a time, ultimately all is mind changes, and only mind changes. The observer's life, mind, and being transcend all materialistic interpretations of reality -- as indeed does the very fact of the "existence" of a perceived external universe.

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## TOWARD A NEW ELECTROMAGNETICS

### PART III: CLARIFYING THE VECTOR CONCEPT

-- Electrical Physics Presently Has a Mindset --

In examining the foundations of geometry, mechanics, and electromagnetics, it becomes strikingly clear that substantial -- even grave theoretical errors were made early on and perpetuated into the existing theory. These errors are now so firmly entrenched that they form a part of the "mindset" of almost all physicists, engineers, and scientists.

So ingrained are these errors and inconsistencies that the orthodox scientist/theoretician finds it almost impossible to break out of them.

The present mindset is analogous to the Newtonian mindset which so fiercely resisted the new ideas of relativity, shortly after the turn of the century. However, after a few scientists formulated the rules and theory of the "relativity mathematics game," a new generation of students, not yet so firmly engrained in the Newtonian mindset, could grasp the new relativity when their teachers expounded it.

In this short series of papers<sup>[1](#),[2](#)</sup> I will roughly outline where the founders of mechanics and electromagnetics went wrong, and indicate the way to correct the fundamental errors. In addition, I will briefly point out some of the implications, and speak of some direct experimental proof.

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## TOWARD A NEW ELECTROMAGNETICS

### PART III: CLARIFYING THE VECTOR CONCEPT

#### NOTES AND REFERENCES

1. Bearden, T. E., "Comments on the New Tesla Electromagnetics: Part I: Discrepancies in the Present EM Theory;" "Part II: The Secret of Electrical Free Energy," Tesla Book Company, 1580 Magnolia Ave., Millbrae, CA 94030, 1982.
2. Bearden, T. E., ["Solutions to Tesla's Secrets and the Soviet Tesla Weapons,"](#) Tesla Book Co., 1981. Also Ratzlaff, John T., "Reference Articles for Solutions to Tesla's Secrets," Tesla Book Co., 1982.
3. Note we are applying the rule, "A thing is that which it does, and it does that which it is." Actually this is one statement of a fourth fundamental law of logic not incorporated by Aristotle. See Bearden, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," DTIS report, available through the National Technical Information System, Port Royal Road, Springfield, VA 22161.
4. Specifically, the resulting theory becomes a curtailed, special case of the much more fundamental electrodynamics and electromagnetics that actually exist .
5. We point out here that measuring a field of force existing in the electron gas in a probe of the measuring instrument is not at all the same thing as measuring a force in the vacuum, nor does it establish that a force exists in vacuum. Indeed, it is already well known that the FIELD concept itself will not withstand rigorous logical examination. For a discussion rather clearly showing the present difficulty in defining a field, see Robert Bruce Lindsay and Henry Margenau, [Foundations of Physics,](#) Dover Publications, New York, 1963, pp. 283-287. Note particularly on p. 283 that a "field of force" at any point is actually DEFINED only for the case when a unit mass is present at that point. It is then illogically ASSUMED that the force

continues to exist at the point in the ABSENCE of the mass, which of course need not follow at all. On p. 284, note the similar logical paradox connected with the idea of a scalar gravitational potential field. The potential (field) is only defined at a point when mass is present at that point, .and it is specifically defined as the potential energy per unit mass for a particle present at that point. IF THERE IS NO MASS PRESENT, NEITHER A FORCE VECTOR FIELD NOR A SCALAR POTENTIAL FIELD IS DEFINED THERE. ASSIGNMENT OF THESE FIELDS TO THE POINT IN THE ABSENCE OF THE MASS IS AN ASSUMPTION, NOT AT ALL A DEFINITION. SINCE A TRUE DEFINITION IS AN IDENTITY, THEN THE ENTITY IDENTIFIED (DEFINED) TO INCLUDE THE PRESENCE OF MASS IS NOT IDENTICAL TO THE ENTITY RESULTING WHEN THAT MASS IS ABSENTED.

To see just how arbitrary and postulational are present. "definitions" of mass and force, see Lindsay and Margenau, op. cit., pp. 84-101. Also see Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol.1,. 1963, Fourth Printing July 1966, p.2-4 for a definition of the electric field in the context of its POTENTIALITY for producing a force. Again, the force only exists when a particle of mass is present. From these examples, one can see the implication that A PHYSICAL FIELD IS SOMETHING SUCH THAT, WHEN A MASS IS INTRODUCED INTO IT, THE MASS EXHIBITS AN EFFECT. For a "force field," this is tantamount to stating that there exists some mechanism connected with a field which, in the presence of a mass causes a force to be exhibited. In that case the force is an EFFECT, not a cause, and there is a more fundamental mechanism that GENERATES FORCE ITSELF. See also field discussions in Feynman, Richard, The Character of Physical Law, M.I.T. Press, Cambridge, MA, March 1967, 2nd printing September 1967, passim.

6. While in Europe prior to 1881, Albert Abraham Michelson performed his first interferometer experiments to determine the velocity of the earth through the ether, obtaining essentially null results. At the Case School of Applied Science in Cleveland,

Ohio, he perfected his interferometer experiment from 1883 to 1887, assisted by a colleague, chemist Edward Williams Morley. By 1887 the results were ready and announced. Michelson himself thought his experiment had proven Stokes' theory of an ether dragged along by the earth in motion, and thus motionless with respect to the earth. This was at odds, however, with certain other experiments indicating a moving ether. The Michelson-Morley experiment was finally reconciled with these other experiments by Fitzgerald's suggestion in 1892 that the physical dimensions of material bodies are altered when they are in motion. In 1907 Michelson was awarded the Nobel prize, the first American to receive it in the sciences.

7. See Lindsay and Margenau, Foundations of Physics, 1963, pp. 324-326; D. C. Miller, "The Ether Drift Experiment and the Determination of the Absolute Motion of the Earth," Reviews of Modern Physics, Vol. 5, p. 203, 1933. Actually the experiments did not yield a conclusively null result, but rather showed large systematic trends. For a typical elimination of the systematic trends, see Handschy, M. A., "Re-examination of the 1887 Michelson-Morley experiment," American Journal of Physics, Vol. 50, No. 11, Nov. 1982, pp. 987-990. See Rho Sigma, Ether-Technology, CSA Printing & Bindery, Lakemont Georgia, 30552, 1977 for several enlightening points on the vacuum ether: See A. K. Lapkovskii, "Relativistic Kinematic Equations and the Theory of Continuous Media," Soviet Physics Journal, Vol. 21., No. 6, June 1978 for an abstract describing Soviet utilization of the concept of a small particle (called by Bearden a quiton, in Quiton/Perceptron Physics, DTIS, 1973) of the medium. See Belyaev, B. N. , "On Random Fluctuations of the Velocity of Light in Vacuum," Azvestiya Vysshikh Uchebnykh Zavedenii, Fizika, No. 11, Nov. 1980, pp. 37-42, translation by Plenum, for discussion of the proven variation of the speed of light in vacuum; the velocity of light in a vacuum on earth is measured to be higher than the velocity of light in the vacuum of deep space. See Graham, G. M. & Lahoz, D. G., "Observation of static electromagnetic angular momentum in vacuo," Nature, Vol. 285, 15 May 1980, pp. 154-155 for the first direct observation of free electromagnetic angular

momentum in vacuum. See Davies, Paul, "Something for nothing," New Scientist, 27 May 1982, pp. 580-582 for a discussion showing that modern theories of the vacuum reveal that even empty space is seething with activity; an ether of sorts emerges from vacuum fluctuations due to quantum mechanics considerations. See Hooper, William J., "All-Electric Motional Electric Field Generator," U. S. Patent No. 3,610,971, October 5, 1971 for a generator which produces a gravitational or inertial field. Einstein suggested that vacuum, complete with electromagnetic and gravitational fields, be called the ether. Dirac certainly did not abandon an ether, for in 1954 he stated "The aetherless basis of physical theory may have reached the end of its capabilities and we see in the aether a new hope for the future." James Clerk Maxwell derived his famous equations based on an ether theory. Sir Arthur Eddington also believed firmly in an ether. Sir Oliver Lodge actually pointed out the dilemma which yields the approach in this paper: writing of the ether in his book, The Ether of Space, Harper & Bros., New York, 1909, he stated: "We have no means of getting hold of the ether mechanically; we cannot grip it or move it in the ordinary way: we can only get it electrically. We are straining the ether when we charge a body with electricity; it tries to recover, it has the power of recoil. . . . "But when electrical theory was being founded, scientists thought of space as something rather fixed, and FILLED WITH a thin material ether. They did not realize that space itself does not exist except after an observation; before the observation, spacetime exists -- indefinite in both length and time. They did not know that electrostatic scalar potential in fact was spacetime, hence also the vacuum and the ether. In assuming that the charge of vacuum is zero and that charge and charged mass are identical, they hid the answer to the dilemma and placed the foundations of electromagnetics on its present unsound basis.

8. The field, of course, is indeed a highly useful concept and this author certainly does not recommend its abandonment. Instead, he recommends that it be placed on a sounder logical basis.

9. Specifically, they came to feel that the "electric

field" which was improperly defined -- was what was waving.

10. In fact Einstein once proposed that the vacuum, complete with its electromagnetic and gravitational fields, should be called the ether. His proposal was not adopted. (See Born, Max, Einstein's Theory of Relativity, Revised Edition, Dover Publications, New York, 1965, p. 224. )

11. Particularly from the work of Schrodinger, Born, Dirac and others.

12. For example, see Lindsay and Marge. nau, op. cit., pp. 287-288. A physical vector is thought to be defined by its magnitude, its direction in space, and its transformation characteristics. Actually that is a geometrical vector, not a physical vector. It does not tell us WHAT A VECTOR CONSISTS OF, but only tells us some of its important characteristics. Remember that a true definition must be an identity.

13. Here a reading of Lindsay and Margenau, op. cit., pp. 79-81 may prove enlightening. Also note that velocity, or  $L/T$  considered "at an instant" (stopped), represents an idea of "motionless motion" and is an application of the fourth law of logic. For a discussion of the fourth law of logic and its usage, see Bearden, Thomas E., "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," Specula, Journal of the A.A.M.S., P.O. Box 1182, Huntsville, AL 35807, combined Vol. 3, No. 4/Vol. 4, No. 3, Oct 1980 - Mar 1981, pp. 50-57 (also available from Defense Technical Information Service).

14. Note this is an identity of opposites, which explicitly violates the three Aristotlean laws of logic. See Bearden, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," loc. cit., 1981.

15. Again note the fourth law of logic: zero motion (the absence of motion) being recognized as a special case of the presence of motion. Also, physical reality consists of internested levels, and any physical object has an internal substructure of nested levels of finer structure, extending down into the virtual (nonobserved) state. For a vector to model (apply to) a

physical object, it itself must be modeled in such fashion as to reflect this kind of substructure. Thus the use of geometrical vectors as models of physical objects in motion is presently flawed in a fundamental fashion.

16. The reader is most strongly urged to read Morris Kline, Mathematics: The Loss of Certainty, Oxford University Press, New York, 1980 as a prelude to understanding what mathematics is and is not, and what it does and does not.

17. Refer to Lindsay & Margenau, op. cit., pp. 79-81 to see how the ideas of motion and vector are inextricably entangled with the idea of a particle.

18. Call it uncertainty or call it constituency; a quantum change is composed of two canonical entities inextricably welded together into a single entity.

19. Time is an unavoidable, nonexclusive constituency of the welded quantum.

20. Simply from the definition of force as CONSISTING OF a time- and length-smeared mass motion change.

21. The force is an effect, not a cause. It IS the smeared charged particle. It is CAUSED by a more fundamental mechanism. It is the result of the combination of (1) a nonzero  $\nabla \phi$ , and (2) the presence of a spinning charged particle. IN A  $\nabla \phi$ , THE SPINNING CHARGED PARTICLE ACCELERATES ITSELF! This is the fundamental secret of free energy that was suppressed, to bury the fundamental work of Nikola Tesla, shortly after Tesla was forced to abort his Wardenclyffe attempt to provide the world with free energy.

22. To quote: "The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history. " Nikola Tesla, "The True Wireless, " Electrical Experimenter, May 1919, p. 87.

23. De Beauregard, O. Costa, "Running backwards the Mermin device: Causality in EPR correlations," American Journal of Physics, Vol. 51, No. 6, June 1983, p. 515.

24. Note the Soviet scientist Kozyrev's experiments with time waves. See Kozyrev, N. A., "Possibility of Experimental Study of the Properties of Time," September 1967, pp. 1-49, in JPRS 45238, May 1968. Kozyrev reports real physical effects from the oscillation of time. Also, note that scalar potential energy of appreciable size with respect to a particle's rest energy can force the situation to be relativistic, even though the velocity of the particle with respect to the velocity of light is small. That is, electrostatic scalar potential alone can cause variation in the rate of flow of time and hence vary physical characteristics. See Bloch & Crater, "Lorentz-invariant potentials and the non-relativistic limit," American Journal of Physics, Vol. 49, No.1, 1981, pp. 67-75. By inference, oscillating the electrostatic scalar potential can produce time waves and lead to direct physical effects.

25. It is already shown in the literature that the electrostatic scalar potential (ESP) can affect spacetime (ST) in the same manner as velocity. Cf Bloch & Crater, op. cit., 1981. Now note that, to any quantal or macroscopic observer, the existence of the 4-space volume of ST implicit in  $(\Delta t)(\Delta v)$ , where  $v$  is volume, cannot be separated from the existence of the subquantal entities that exist therein. We therefore DEFINE the magnitude of the ESP as the summation of the absolute values of all the internal virtual vectors in the  $(\Delta t)(\Delta v)$  quantum of ST, divided by the absolute value (magnitude) of  $(\Delta t)(\Delta v)$ . We take the view that no such thing as "unstressed" ST physically exists, and that "spacetime" and "stressed spacetime" are identical. Hence ESP and ST are one and the same thing. Note that this implies that the virtual density of ST is variable, and is nothing but the magnitude of the ESP. In EM theory, the assumption that the ESP of vacuum ( $\emptyset_O$ ) is equal to zero is in serious error. In fact,  $\emptyset_O$  IS "spacetime of the laboratory observer," in the new view.

26. For example, the definition of the electrostatic



potential (ESP) is usually taken as "the work which must be done against electric forces to bring a unit charge from a reference point to the point in question; the reference point is located at an infinite distance, or, for practical purposes, at the surface of the earth or some other large conductor." (McGraw-Hill Dictionary of. Scientific and Technical Terms, ed. Daniel N. Lapedes, second edition, 1978, p. 518.) Note that this is NOT a definition at all, for it is not an identity. Instead, it is the statement that, if an ESP exists at a point and a unit charged mass (assumed to be at a point) is brought in from infinity toward the ESP location point, the amount of work it is necessary to expend upon the mass of the particle is equal to the magnitude of the ESP. The ESP exists whether or not any work at all is expended, and whether or not a charged unit mass is brought in. To adequately define ESP, we must define its identity, or what it consists of, in the absence of mass, since we have conceived the ESP to exist at a vacuum point. Further, the definition usually taken is completely a 3-space definition. Instead, in our new view the ESP is to be taken at a point in n-space, where n is equal to or greater than 4.

27. See Bearden, Quiton/Perceptron Physics, 1973, available through the DTIS. See also Bearden, The Excalibur Briefing, Strawberry Hill Press, San Francisco, CA, 1980. Ultimately all physical phenomena are mindchanges in the minds of all the observers.

28. And then assumes this summation value is zero.

29. See note 25 above.

30. Bearden, [The Excalibur Briefing](#), Strawberry Hill Press, San Francisco, CA, 1980.

31. Cf Rauscher, E. A., "Electromagnetic and Non-Linear Phenomena in Complex Minkowski Spaces," Tecnic Research Laboratories, 64 Santa Margarita, San Leandro, CA 94579. Presented at the 1983 March Meeting of The American Physical Society in Los Angeles, CA 21-25 March, 1983. This is a truly remarkable paper of great significance. Rauscher, a world-class physicist, has presented a new theoretical

model for some rather extraordinary possible extensions of present electromagnetics.

32. Cf Muses, Charles, Introduction to Jerome Rothstein's Communication, Organization, and Science, The Falcon's Wing Press, Indian Hills, Colorado, 1958. The entire foreword by Muses is a remarkable document, which analyzes the structure of time itself. See also his profound summary paper, "Hypernumbers II" in the January 1978 issue of Applied Mathematics and Computation, published by Elsevier.

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#### ADDITIONAL NOTES AND REFERENCES

Although quotes and direct utilization of material from these references were not incorporated in this paper, the following references were also consulted. In addition, several notes are added for further clarity.

33. Rupert Sheldrake, A New Science of Life: The Hypothesis of Formative Causation, J. P. Tarcher, Inc., Los Angeles, CA, 1981.  $\emptyset$ , the electrostatic scalar potential field, in my opinion is actually the morphogenetic field that Sheldrake proposes.

34. Briefly, by a "particle" we mean an entity so constructed that, if any part of it changes all of it changes. From the viewpoint of the particle, this implies that to change is to detect, and to detect is to change. Also, internal and external become synonymous, in the "detected" sense. The idea of a "fundamental particle" in physics actually invokes the fourth law of logic implicitly.

35. Only if a thing dimensionally contains time, can it "occupy time." This point is so obvious that one wonders how so many of the scientists and mathematicians seem to have missed it. By this criterion, e.g., mass does not exist in time, a priori. To "observe" or detect, in fact, means to stop time, thus collapsing the wave function. However, it reduces the observable or detectable to a spatial quantity, not a spatiotemporal quantity. In other words, the ordinary scientific method destroys a part of reality in each detection or measurement, yielding only a partial truth. not fundamental truth.

36. Note that electrostatic scalar potential is actually infinite-dimensional and hyperspatial. The coverage of

this paper is still only a special case. By Tesla technology, it is possible to do direct engineering in hyperspace -- beyond our present space and time, with all that that statement implies.

37. Bob Sloan, "Nikola Tesla: The Greatest Inventor of all Time?". IEEE Antennas and Propagation Society Newsletter, June 1983, pp. 9-11. A very succinct summary of the importance Tesla played in ushering in the modern age.

38. Gerald E. Brown and Mannque Rho, "The structure of the nucleon," Physics Today, Vol. 36, No.2, February 1983, pp. 24-32. Recommended as a summary of the new thinking as to the structure of the nucleon: a bag containing three quarks, surrounded by a cloud of mesons which squeeze the bag.

39. John J. O'Neill. Prodigal Genius: The Life of Nikola Tesla. Angriff Press, P.O. Box 2726, Hollywood, CA 90028, new printing 1981.

40. Margaret Cheney, Tesla: Man Out of Time, Prentice-Hall, Englewood Cliffs, NJ, 1981.

41. John T. Ratzlaff and Leland I. Anderson. Dr. Nikola Tesla Bibliography. Palo Alto. CA, 1979. Indispensable.

42. Dr. Nikola Tesla: Selected Patent Wrappers, compiled by John T. Ratzlaff, multiple volumes. 1980. Available from The Tesla Book Company, 1580 Magnolia, Millbrae, CA 94030. Tesla's correspondence with the U.S. Patent Office, when patiently trying to obtain patents. He spent a great deal of time trying to convince the Patent Office that his inventions would indeed work. Some of them required 12 years to obtain, and then were "watered down" in the process.

43. Thomas Commerford Martin, The Inventions, Researches and Writings of Nikola Tesla, Originally published in 1894 by The Electrical Engineer, New York; republished in 1977 by Omni Publications, Hawthorne, CA 90250.

44. Ernest Nagel and James R. Newman, Godel's

Proof, New York University Press, 1958.

45. Yakov P. Terletskii, Paradoxes in the Theory of Relativity, With a Foreword by Banesh Hoffman, translated from the Russian, Plenum Press, New York, 1968. Of particular interest is the discussion on particles with imaginary masses, moving faster than the speed of light, contained in pp. 104-107. Such particles can in principle be experimentally detected. In fact, it would appear that the well known exchange of virtual particles between two other particles, such that each turns into the other, is such a case. (Note that protons and neutrons in the nuclei of atoms do precisely this.)

46. Robert M. Besancon, Ed., The Encyclopedia of Physics, Second Edition, Van Nostran Reinhold, New York, 1974. Particularly see the discussion on the electron, pp. 272-274. Note this discussion predates Stanford University's experiments yielding fractional charge, though it does point out that several physicists had also reported measuring fractional charges on the electron. See also the discussions of ionization, Michelson-Morley experiment, the photon, and propagation of electromagnetic waves.

47. Robert Eisberg and Robert Resnick, Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles, John Wiley & Sons, New York, 1974.

48. R. K. Bullough and P. J. Caudrey, eds., Solitons, Springer-Verlag, New York, 1980.

49. James Dale Barry, Ball Lightning and Bead Lightning, Plenum Press, New York, 1980. Note particularly p.196, for a short discussion on flashless discharges. An extensive bibliography is also included.

50. Harley D. Rutledge, Project Identification, The First Scientific Field Study of UFO Phenomena, Prentice-Hall Inc., Englewood Cliffs, NJ, 1981.

51. John J. Reitz, Frederick J. Milford, and Robert W. Christy, Foundations of Electromagnetic Theory, Third Edition, Addison-Wesley, Reading, MA, 1979.

52. The entire series of handbooks by William Corliss, dealing with anomalies and unusual natural phenomena

of all kinds. Corliss is a national treasure, and his handbooks are absolutely indispensable.

See particularly his Handbook of Unusual Natural Phenomena, The Sourcebook Project, Box 107, Glen Arm, MD 21057, 1977 and his Lightning, Auroras, Nocturnal Lights, and Related Luminous Phenomena, 1982.

53. Bernard d'Espagnat, Conceptual Foundations of Quantum Mechanics, W. A. Benjamin, Menlo Park, CA, 1971.

54. D.W.G. Ballentyne and D.R. Lovett, A Dictionary of Named Effects and Laws in Chemistry, Physics and Mathematics, Fourth Edition, Chapman and Hall, New York, 1980. Check this neat little book to discover some very odd effects in materials.

55. David Bohm, The Special Theory of Relativity, W. A. Benjamin, New York, 1965.

56. Albert Einstein, Relativity: The Special and the General Theory, Crown Publishers, New York, 1961. See particularly the discussion of relativity and the problem of space, in Appendix V.

57. Edwin F. Taylor and John Archibald Wheeler, Spacetime Physics, W. H. Freeman and Co., San Francisco, 1966. Note particularly the discussion on observers and frames in the first two dozen pages. On p.19, note that the notion of a frame requires an infinite observer distributed through each and every "point" that was clock-synchronized in a frame. Since all observers are localized, a better idea is to realize that all the "external" modeling just represents the relative changes inside the physical detection system of the observer himself/herself. All detection/observation is totally inside the physical observer.

58. Paul Edwards, Ed. in Chief, The Encyclopedia of Philosophy, Vols. 1-8, Macmillan Publishing Co., New York, 1967.

59. Michael A. Persinger and Gyslaine F. Lafreniere, Space-Time Transients and Unusual Events, Nelson-Hall, Chicago, IL, 1977.

60. John David Jackson, Classical Electrodynamics, Second Edition, John Wiley & Sons, New York, 1975.

61. James Clerk Maxwell, A Treatise On Electricity & Magnetism, Vols. 1 & 2, Third Edition, Dover Publications, New York, 1954. An unabridged, slightly altered, republication of the third edition, originally published by the Clarendon Press in 1891.

62. Jack S. Greenberg and Walter Greiner, "Search for the sparking of the vacuum," Physics Today, August 1982, pp. 24-32. A beautiful summary article on the present concept of the vacuum, from the standpoint of quantum mechanics and quantum field theory. I specifically urge anyone interested in tapping the vacuum energy to read this article.

63. Max Jammer, Concepts of Mass, Harvard University Press, Cambridge, MA, 1961. Recipient of the monograph prize of the American Academy of Arts and Sciences for the year 1960 in the field of physical and biological sciences. This book, strange as it may seem, was the first monograph to subject the notion of mass to an integrated and coherent historical investigation, something which had never before been done. The reading of this book is an absolute must for anyone seriously concerned about whether or not science speaks fundamental truth, or to what degree it does so. Most scientists assume foundations concepts such as "field," "force," "mass," "time," etc. are well-defined and well-understood in physics, since they are ubiquitous and so familiar. In fact, none of the absolute fundamentals in the foundations of physics is unambiguously understood!

The last paragraph by Jammer is illuminating: "The modern physicist may rightfully be proud of his spectacular achievements in science and technology. However, he should always be aware that the foundations of his imposing edifice, the basic notions of his discipline, such as the concept of mass, are entangled with serious uncertainties and perplexing difficulties that have as yet not been resolved."

64. G. Burniston Brown, "Gravitational and inertial mass," American Journal of Physics, Vol. 28, p. 475, 1960: "...one of the most astonishing features of the

history of physics is the confusion which surrounds the definition of the key term in dynamics, mass."

65. Whittaker, Sir Edmund, A History of the Theories of Aether and Electricity, Vol. 1: The Classical Theories, and Vol. 2: The Modern Theories 1900-1926, Harper Torchbooks, Harper & Brothers, New York, 1960.

66. Weyl, Hermann, Space -- Time -- Matter, Fourth Edition, translated from the German by Henry L. Brose, Dover Publications, New York, 1922.

67. Jammer, Max, Concepts of Space: The History of Theories of space in Physics, Second Edition, Foreword by Albert Einstein, Harvard Univ. Press, Cambridge, MA, 1969.



# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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-- It Started With Geometry and Grew --

At the very beginning of what we call the "scientific period," mathematics was both king and queen, and Euclidean geometry was its handmaiden. So we ask, "What precisely is geometry?" Here we are not interested in a "textbook" answer, but in an answer indicating what geometry really does.<sup>3</sup> In other words, with what does geometry concern itself, and what is the fundamental nature of those things with which it concerns itself?

Briefly, geometry -- at its foundation -- is totally spatial. It is fitted to, and expressed in terms of, the TOTAL ABSENCE OF MASS. Thus the geometer deals in abstract, massless entities called "points," "lines," "planes" etc. When the geometer speaks of "motion," he speaks of a time-smeared, length-smeared point. Geometry at heart is massless, and a "geometer's vector" is a highly specific type of "system." In fact, it represents the "time-smearing" and "length-smearing" of a point. A priori, the fundamental concept of the geometrical vector has taken a "spatial" entity and introduced a hidden involvement with "time."

Modern mathematics and physics have followed an intertwined development for several hundred years. And both sprang as offshoots of the original work of the geometers. Let us briefly sketch the overall path of interest taken by these two developing disciplines.

With the advent of Descartes's fundamental work, algebra was combined with geometry to yield analytic geometry, a new and powerful mathematical tool. With the invention of calculus by Leibniz and Newton, both mathematics and physics received a giant impetus. Differential geometry and vector mathematics arose in full splendor and, in physics, mechanics leaped to the forefront with Newton's

profound work.

But the mechanics made a most fundamental error when they simply applied the geometer's vector to a mass, to produce -- so they thought -- a mass vector. That which rigorously applies only to the absence of mass cannot be so lightly applied to the presence of mass without the risk of serious limitations in the resulting theory. The precise difference between a geometer's massless vector and a mechanic's mass-vector is one of the issues to be developed in this thesis.

As rapid development continued in mechanics and mathematics, certain physicists were involved in intense experimental work on charged matter, becoming the first electricians. Both the preceding mathematical ideas and constructs as well as the preceding (partially erroneous) mechanics constructs and ideas were applied by the electricians, struggling with their pith balls, cat fur, and glass rods to understand, quantify, and model electrical forces and the phenomena of charged matter. In other words, the electricians strove to formulate the physics and dynamics of charged matter and its interactions by simply "adding to" the work of the geometers and mechanics. Here again, a fundamental logical error was made. That (geometry) which a priori applies only to the absence of mass, and that (mechanics) which a priori applies only to the absence of charge, cannot be lightly applied to the presence of charged mass (both mass and charge)<sup>4</sup> without risking the incorporation of grave limitations in the resulting theory.

After the profound work of Maxwell, the idea of FIELDS OF FORCE became more prominent, until the field concept ruled the day<sup>5</sup>. The electricians continued, pushing the idea of fields into space and vacuum itself, along the way inventing the idea of "charge effects" existing even in the massless vacuum, with concomitant fields. Meanwhile, they had thoroughly confused chargeless point-smeared, chargeless mass-smeared, length-smeared and time-smeared vectors.

After a set of fundamental experiments designed to detect motion of the material ether yielded essentially null results<sup>6</sup>, Michelson and Morley were regarded as having completely disposed of the ether -- even though the experiments only disposed of material

ethers, and not Lorentz-invariant non-material ethers<sup>7</sup>. Maxwell's equations and the field concept were elevated to profound importance.<sup>8</sup> Then, after Einstein's fundamental relativity work shortly after the turn of the century, the ether concept faded away and the field concept reigned supreme. Indeed, in their enthusiasm the interpreters of relativity went so far as to affirm that one can have a wave without any medium; that is. that something can be moving (waving) without anything there to move!<sup>9</sup> And with great glee they pronounced the final end to the idea of "ether" as a medium, even though Einstein himself never did any such thing.<sup>10</sup> With the advent of Einstein's General Theory of Relativity, even matter came to be regarded as just a special "kink" or curvature in spacetime or "vacuum nothing."

Quantum mechanics arose and even certainty and determination fell. Chaos, probability, and randomness now assumed the ruling position. Probability waves (and probability fields) arose,<sup>11</sup> as did quantum fields of various kinds. The intermingling of these concepts with the concepts of electrodynamics pushed the idea of the field even farther into esoteric realms.

The point is, each of these developing disciplines incorporated and built on the foregoing disciplines. From the beginning of geometry, there was no rigorous definition of a vector, and there is none today.<sup>12</sup> From the beginning of mechanics, in their foundations the theorists made grave logical errors by incorporating the geometer's vector; errors so great that today mechanics and electromagnetics are severely flawed, as is everything that came after them and built upon their illogical foundations.

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#### -- Points and Motion --

It is my purpose in this paper to expose in a very simple fashion the most basic errors that were made.

One basic error involves the idea of motion itself.<sup>[13](#)</sup>

In formulating concepts of motion, the geometers used a "point in motion" to determine or specify, for example, velocity. Now a "point" is a static concept a priori. To determine (or even to think and perceive) motion, one must determine that it occupies two different points (positions or locations) at two different times, yet consider both points at the same time. Indeed, that is precisely what the arrow means that is used to represent a vector. A "point in motion" therefore represents a contradiction of opposites. That is, it represents the idea that "that which is motionless has motion."<sup>[14](#)</sup> Even with this, there is a difference in a spatial point and a spatiotemporal (spacetime) point. To exist at all, a spatial point must be moving in time; in other words, it is a spatiotemporal line, even if it is a static spatial point.

Vector analysis was constructed in the abstract -- again, a massless point in motion possessed or constituted a velocity vector, etc. In massless ( and timeless) space, FIELDS were defined: "scalar" fields constituted the assignment of a simple motionless number (magnitude) to each spatial point, while "vector" fields constituted the assignment of a "simple vector" (magnitude and velocity) to each spatial point. But the MATHEMATICAL vector system consisted of massless (point) motional relationships, recognizing zero motion as a special case of motion.<sup>[15](#)</sup>

Of course mathematics development was also always intertwined with practical problems. With the

sustained application of mathematics to gross physical material problems, mechanics slowly arose.

These developments required decades and even centuries to occur completely. All along the way, innovations and changes -- and additions to the mathematical formulism were being derived and taught to students as the "natural" system of reality. A permanent mindset was being forged.

Indeed, mathematics was regarded as THE single human expression of fundamental truth. Not until Godel's work in the twentieth century did it become evident that MATHEMATICS IS SIMPLY A GAME PLAYED ACCORDING TO ASSIGNED RULES, AND THERE IS NO ULTIMATE TRUTH IN MATHEMATICS ALONE.<sup>16</sup> It is a most useful game, of course, since it is the game fitted to perception. Thus it applies, essentially, to whatever can be perceived. But to be applied to physical systems, it must be changed, altered, updated, and fitted as the perceiving/detecting instruments become ever more subtle.

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### PART III: CLARIFYING THE VECTOR CONCEPT

#### -- Four Types of Vectors Actually Emerged --

As the physical sciences slowly developed and incorporated abstract geometry and mathematics, in actuality four major types of vectors and two major states of observation evolved, although this fact did not become apparent to the scientists. Specifically, the mathematicians and scientists failed to recognize the differences in the four types of vectors, hopelessly intermingling them and confusing them as a single class of vector. Further, they did not appreciate that a fundamental vector conceptually is a UNITARY SYSTEM, and the system represented by one of these four types of vectors utilizes and is comprised of different components, "welded together with no seam in the middle."

Conceptually (and from a systems viewpoint), the four types of vectors are (1) the chargeless, massless spatial system vector (geometer's vector), (2) the uncharged mass system vector (mechanic's vector), (3) the charged mass system vector (electrician's vector), and (4) the charged space system vector (advanced electrician's vector). These four fundamentally different vectors are shown in Figures 1, 2, 4, and 9 in a simplified manner.

The major problem was that, beginning with the geometer's vector, these four major types of vectors were not treated as systems. Instead, their "vector" aspects were hopelessly confused and intermeshed, and no distinctions were made between them. And in the foundations of the mathematical constructs, time-smearing was not recognized at all.

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-- Quantum Mechanics Compounds the Problem --

In addition, the two presently recognized observation states -- observable and nonobservable (virtual) -- were of course unknown to the early geometers and electricians, and these ideas were not incorporated directly into the theoretical foundation.

From particle physics and quantum mechanics, we now understand that physical reality is structured of an observable state, underlaid with an infinite number of ever finer, successive levels of virtual (unobservable) states. At least reality is most accurately modeled in that fashion, according to particle physics today.

It is also well known, for example, that at the most fundamental level, one cannot actually separate nonmotion from motion (which implies, for example, that one cannot separate mass and velocity). In other words, a "mass in motion" idea is actually incorrect, at the most basic level. What actually exists is a sort of "smeared mass". That is, "mass-motion" is fundamentally what exists, not mass IN motion .

Actually, all that the Heisenberg Uncertainty Principle implies is this fact: If one examines the concept of "static (non-smeared) thing in non-static (smeared) motion", in ever finer detail, one reaches a degree of fineness where the "smearing" is paramount and one cannot have an un-smeared or "separate static thing" to be in motion. Instead, one only has the smeared, 4-dimensional spacetime entity, without 3-dimensional spatial separations.

This means, for example, that at the most basic level, it is actually incorrect to represent a momentum with a little static particle of mass connected to a spatial velocity vector. It is incorrect to think of the system as comprised of TWO SEPARATE ENTITIES, (1) a mass, and (2) a massless spatial system velocity vector (a geometer's vector).

We mention in passing that, presently, we

understand that every particle is continually accelerating. First, the particle has spin, which involves rotation, which means that every "part" of the periphery of the particle is accelerated toward the center axis of spin. Second, every particle is continuously "fluctuating," and these fluctuations are accelerations. Further, we must consider any change such as an acceleration -- as existing in a small time increment, and occurring in a small length increment. Thus mass particles actually exist as (mass x acceleration x time x length). This of course has the dimensions of ACTION or angular momentum. The "real" world of physical matter, then, is composed of building blocks of action, called "quanta." Any other physical "quantity" must be obtained by fissioning (differentiating) the action quantum. For this reason, quantum mechanics presently must postulate that to every observable there corresponds an operator.

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-- To Summarize Briefly --

Let us now summarize these concepts and further examine their impact.

In physics, there must actually exist four major KINDS of vectors, rather than just one as prescribed by present interpretation. These vectors are "built" starting with four major kinds of particles.<sup>17</sup> These are: (1) the spatial point, (2) an uncharged mass particle, (3) a charged mass particle, and (4) a charged spatial point. Further, each of the four vectors at its most fundamental level (that is, at the quantum level)<sup>18</sup> is actually an inseparable, unitary SYSTEM welded into a single undivided entity containing time and existing nonexclusively in time.<sup>19</sup> When we look at or represent the so-called "parts" of the system, we are looking at them before they are welded together into the physical vector. That is, whenever we speak of "parts, " we imply that a "cutting" or "differentiating" action has been implied to separate the system into such "parts."

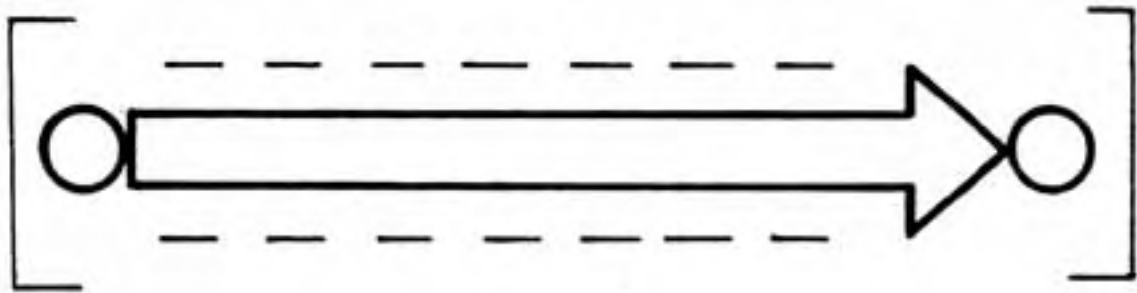
From such considerations, four different kinds of system vectors result.

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### **(GEOMETER'S VECTOR)**

Figure 1. Uncharged spatial (massless) system vector.

#### UNCHARGED SPATIAL (MASSLESS) SYSTEM VECTOR

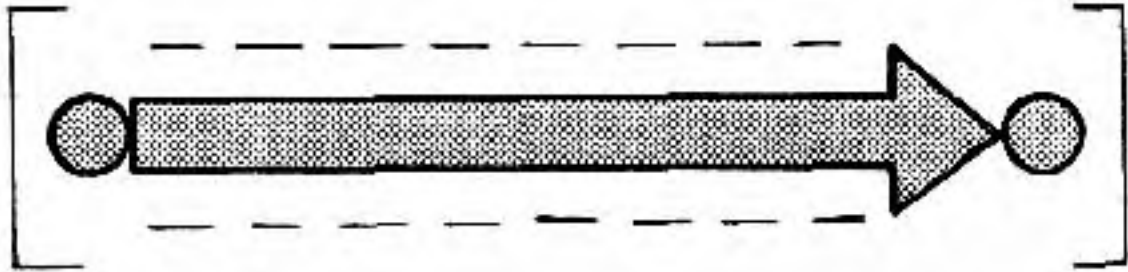
-- (Figure 1) --

This is the geometer's abstract vector, consisting of a "point in motion." (Actually, it is a "smeared point," for example.) However, so ingrained is the concept of a "point in motion" velocity vector that we now consider it to be "natural" because of its total familiarity. But simply ask, "WHAT is in motion?"<sup>17</sup> and you immediately see the difficulty. To have a WHAT, one must "stop the action" (detect or measure), separating "static" from "non-static." Acceleration and other vectors, etc. have also been derived by the geometer and utilized in similar fashion. All are massless.

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### **(MECHANIC'S VECTOR)**

Figure 2. Chargeless mass system vector.

#### CHARGELESS MASS SYSTEM VECTOR

-- (Figure 2) --

This type of vector actually is the essential vector of mechanics, involving mass-motion (momentum), force (mass-motion change), etc. The fundamental difference between this type of vector and the geometer's vector is the presence of smeared mass existing in time (i.e., mass-time), welded together with a geometer's vector, but with no seam in the middle, into a new kind of "vector" AS A SYSTEM. The vector is the SYSTEM EXISTING IN TIME .

To illustrate:

"Momentum" is more properly referred to as "mass-motion" rather than "mass in motion." That is, at the fundamental level, the mass is NOT "separate" from its motion. It is NOT separated from the time in which the smearing occurs. The idea of momentum, however, is really to express the time-density of the mass-smeared-through-length. It is, in other words, the time rate of length-smearing of mass. Now in our minds we have conceived that

$$\bar{p} = m \otimes \bar{v} \quad (1)$$

where, by the symbol  $\otimes$  we mean "coupled to"; but we actually have

$$\bar{p} \equiv [\bar{m}\bar{v}] \quad (2)$$

where we are not allowed to separate (even in thought)  $m$  and  $\bar{v}$ . Quantum mechanics agrees with this essentially, because  $\bar{p}$  is a canonical variable linked to length, in any observable physical change. (The REASON  $p$  is canonically linked to  $\Delta L$  is because  $\bar{p}$  is the time-rate of length-smearing of  $m$ . If there is no length, there is no length-smearing of  $m$  to have a time rate OF in the first place.)

Note that, not only is

$$\bar{p} = [\bar{m}\bar{v}] \quad (3)$$

but also

$$\bar{p} \equiv [\bar{m}\bar{v}] \quad (4)$$

which is a much stronger and quite different statement. That is,  $\bar{p}$  is IDENTICALLY  $(\bar{m}\bar{v})$ , not just calculably EQUAL TO  $(m)(\bar{v})$ . This means that  $\bar{p}$  is a SYSTEM that is COMPRISED of mass-motion.

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## TOWARD A NEW ELECTROMAGNETICS

### PART III: CLARIFYING THE VECTOR CONCEPT

-- What Force Is --

We now note that force, for example, is -- and may be defined as -- the time-rate of change of momentum, or

$$\bar{\mathbf{F}} \equiv d/dt[\bar{\mathbf{p}}] \quad (5)$$

and this identity states that a force -- any force is COMPRISED OF time-changing "mass-motion." As such, the force vector is a mass-system vector, not just a massless spatial vector. Fundamentally, this mass-system vector is a totally different creature from a massless spatial vector. Our present manner of considering force as a geometer's vector "separately applied to" a mass particle is completely erroneous at the quantum level. Instead, fundamentally force is always a mechanic's vector. Force is an EFFECT, not a CAUSE.

And here mechanics made a most fundamental error, in not recognizing the difference between its kind of vector and that of the geometer.

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## TOWARD A NEW ELECTROMAGNETICS

### PART III: CLARIFYING THE VECTOR CONCEPT

--Force and Hertzian Waves Cannot Exist in Vacuum --

Note that one cannot have an observable "force vector" existing in vacuum a priori.

For example, we have the definition of force as

$$\vec{F} \equiv \frac{d\vec{p}}{dt} \quad (6)$$

or

$$\vec{F} \equiv [\overline{m\vec{a}} + \dot{\overline{m\vec{v}}}] \quad (7)$$

and we see that, rigorously, a force vector CONSISTS OF (not, "is equal to") a time-changing mass-motion vector system. IF THERE IS NO OBSERVABLE ACCELERATING MASS PRESENT, THEN THERE CAN BE NO OBSERVABLE FORCE PRESENT.

The mass can accelerate in time (increase or decrease of mass) or space (increase or decrease of velocity) or both.

Observable force CANNOT exist in vacuum (in the absence of mass), a priori.<sup>20</sup>

However, assume for a moment that one could have a massless force vector, as assumed in present electrical theory. Let this force vector appear at a point in the vacuum. Since the vacuum has zero observable mass, it would have zero inertial resistance to this hypothetical observable force -- hence the observable force would instantly produce an "infinite" acceleration of its point of application, vanishing with it into the infinite distance. Therefore our fictitious force would disappear the instant it appeared! In any case, it could not be retained at a point in the vacuum for any finite length of time, however small.

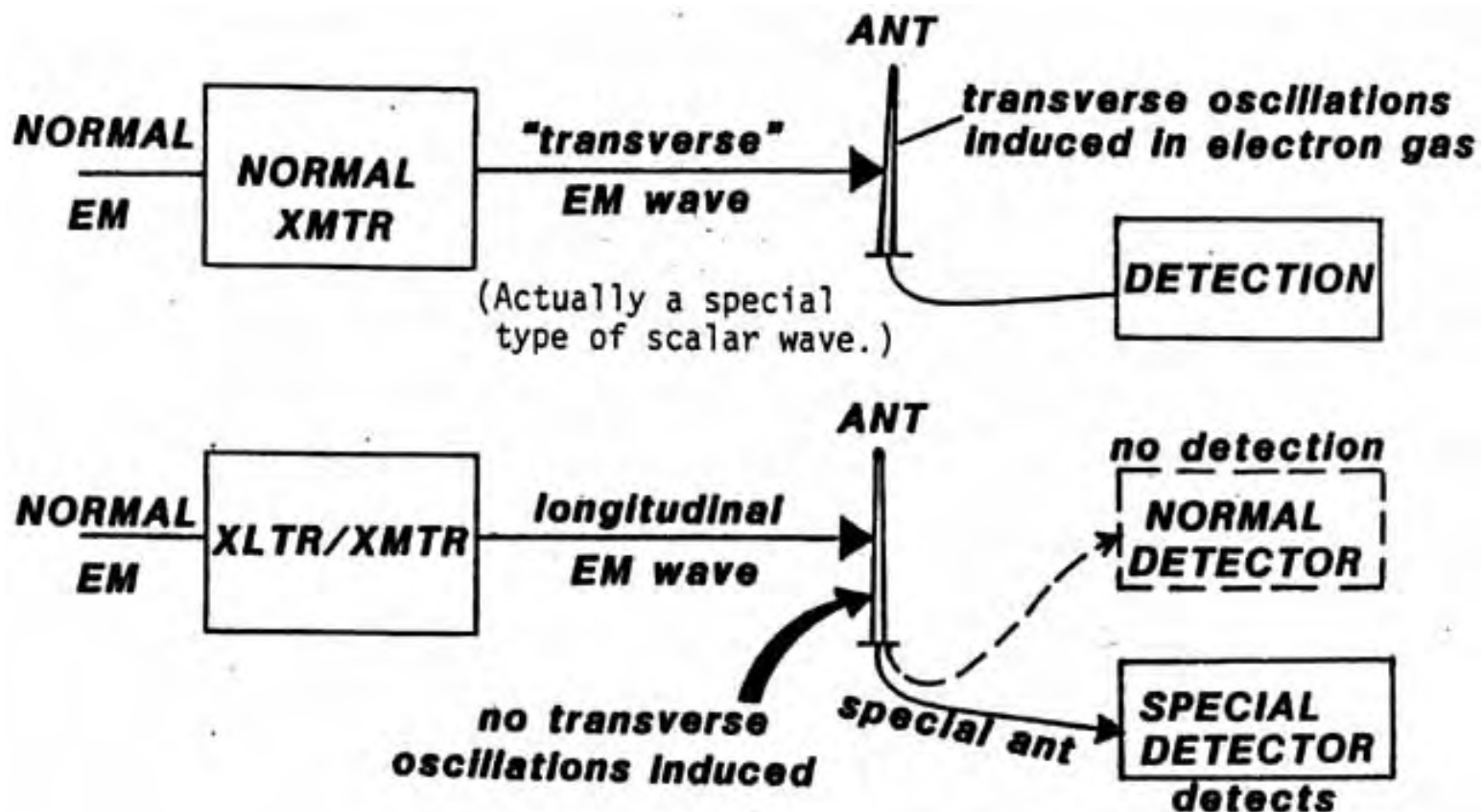
The direct implications are that (1) something other than an observable electrical force field exists in the vacuum, and (2) there must exist a more fundamental mechanism by which this "something else" generates or CREATES a force on/of a moving electrically charged mass. (Note again that, at the most

basic level, any particle of mass is always quivering, in motion, and accelerating. from quantal considerations alone.)

Thus immediately we have discovered something unique about so-called "force-fields" in vacuum: for example, about gravitational field, electrical field, and magnetic field (and the strong force and the weak force as well). These fields do not exist at all as ordinary force vectors -- and real force fields -- in vacuum!  $\vec{E}$  and  $\vec{B}$  fields, e.g., are defined in terms of force per unit electrical charged mass and magnetically charged mass, respectively. In the absence of mass, they cannot exist.

And this in turn means that transverse  $\vec{E}-\vec{H}$  field waves (Hertzian waves) cannot exist in a vacuum. Indeed, they appear on, and ARE CONSTITUTED of, the charged-mass-motion that changes, and they appear where such change occurs, as a result of an introduced mass.<sup>21</sup> But in the absence of the spinning charged particle of mass, they do not exist as force fields at all.

Hertzian waves exist in a transmitting whip antenna, for example, in the oscillating electron gas along its length. Something else entirely different exists in vacuum between the transmitting antenna and the receiving antenna. Then in the receiving antenna, Hertzian waves again exist in the oscillating electron gas along its length. (See Figure 3. )



### Figure 3. Detection of "transverse" and longitudinal waves

This is interesting, for Nikola Tesla stated several times that HERTZIAN WAVES CANNOT BE PRODUCED IN A VACUUM, NOR CAN THEY TRAVEL IN A VACUUM.<sup>[22](#)</sup>

Tesla was correct, as we are beginning to see.

We shall later return to show in what form so-called "force-fields" actually exist in vacuum.

For now, I point out that I am stating a fundamental change to all of physics, including both mechanics and electromagnetics.

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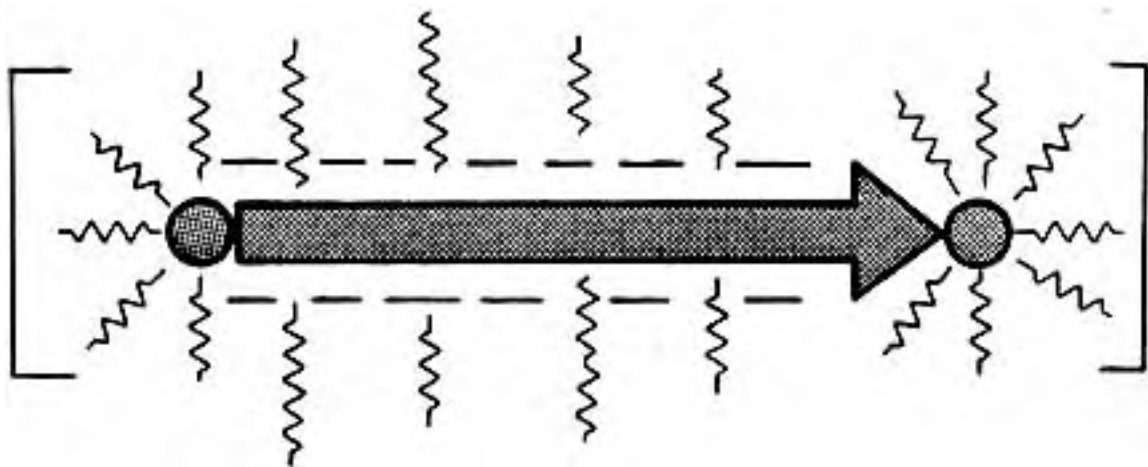


# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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### **(ELECTRICIAN'S VECTOR)**

Figure 4. Charged mass system vector.

-- CHARGED-MASS-SYSTEM VECTOR --  
-- (Figure 4) --

The third type of vector we meet is the vector mass system where the mass is charged. First, we point out a serious error in present electromagnetic (EM) theory. That is, in present theory it is implicitly assumed that

$$\mathbf{q} \equiv \mathbf{q}_m \quad (8)$$

In other words, "charge" and "charged mass" are erroneously assumed to be identically the same thing.

In the days when electricians were playing with pith balls and striving to uncover the secrets of electricity, they knew nothing at all about the virtual

state, and consequently nothing about a "virtual particle flux" on a particle of mass causing (and comprising) the "charge" of that mass.

Today, of course, we know from particle physics and quantum mechanics that the "charge" on an observable particle of mass IS due to a flux of virtual (nonobservable) particles on and off the mass of the observable particle (see figure 5). A charged mass is thus presently known to be a SYSTEM: a massless charge flux, coupled to a bare particle (chargeless mass) constitutes a "charged particle."

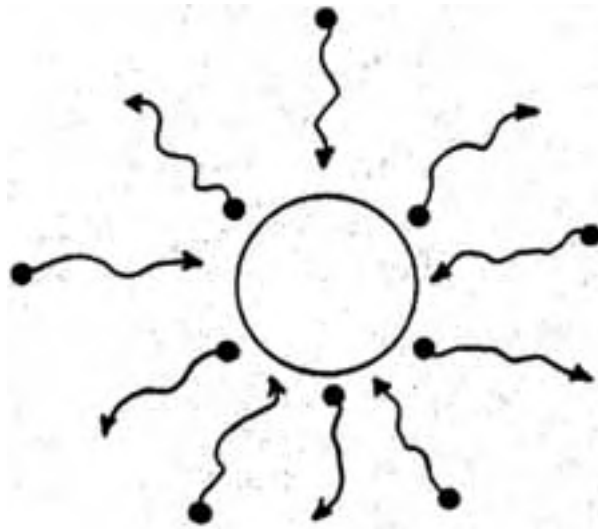


Figure 5. The "charge" on an electron mass consists of a flux of virtual particles on and off the mass.

Thus, actually the "charge" is the virtual (unobservable, or SPATIO-TEMPORAL) flux to and from the observable SPATIAL particle of mass. So, rigorously,

$$q \neq q_m \quad (9)$$

But instead,

$$q \equiv [d/dm(q_m)] \quad (10)$$

and this is a definition and therefore an identity. This definition alone affects all present electromagnetics theory.

To illustrate: In founding electrical theory, early scientists dealt with forces generated by charged masses (for example, charged pith balls). They later

extrapolated the experimental results they obtained (or thought they obtained) with the smallest charged mass, a charged particle. In Figure 6, I show the classic situation for derivation of the idea of E-field (except we have used an electron for our test charge, rather than a pith ball).

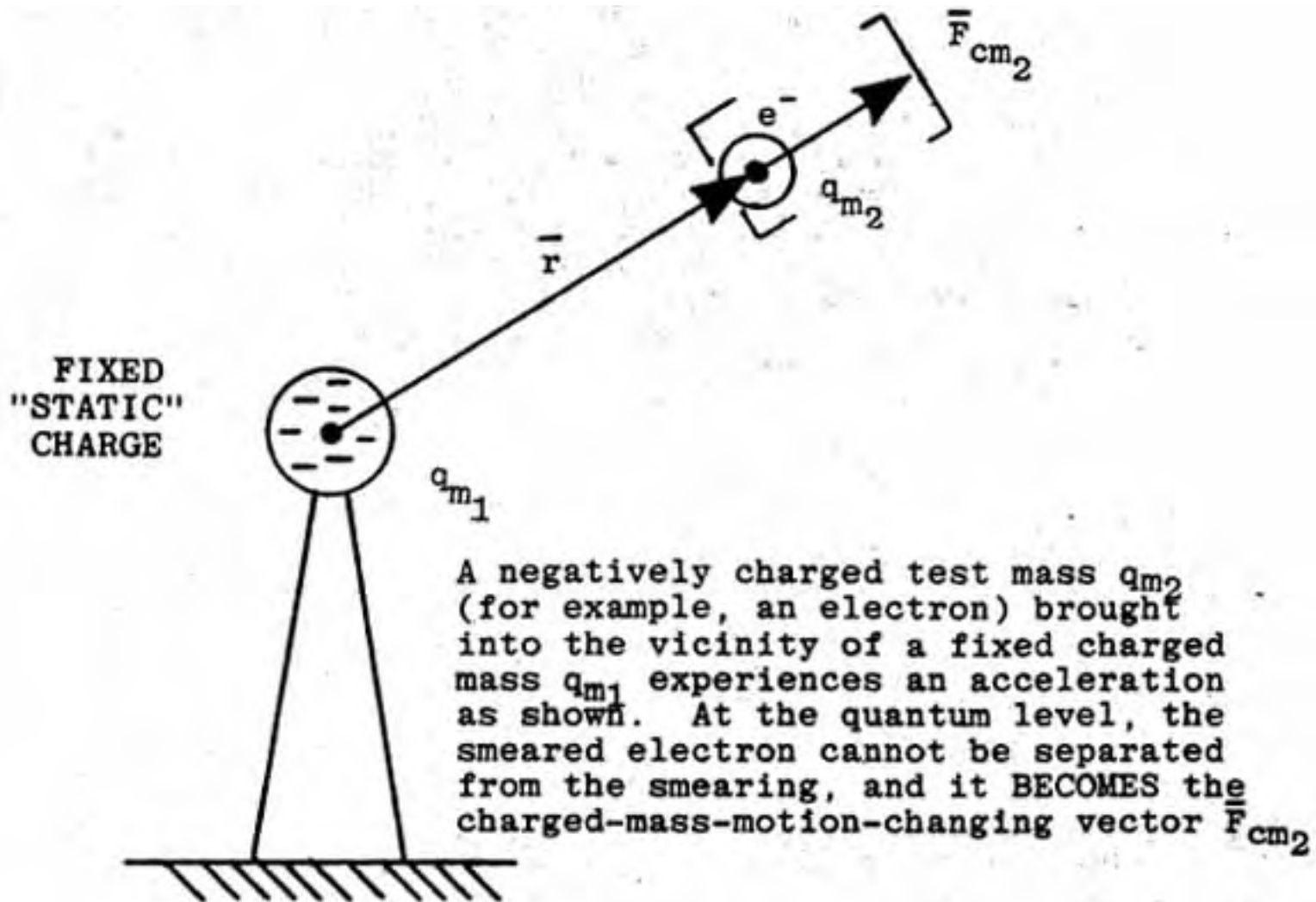


Figure 6. A test charge (charged mass) brought near a fixed charge (charged mass) experiences an acceleration.

Now note that what actually happens is that the unrestrained test charge becomes a CHARGED MASS SYSTEM VECTOR (a "smeared charged mass-motion changing"). The "test charge" BECOMES a charged mass force vector; it does not have a separate geometer's vector "appear on it." What actually happens is shown in Figure 7.

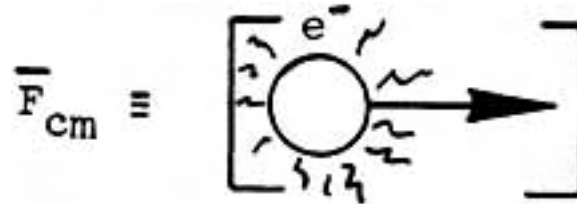


Figure 7. A charged-mass-system vector.

That is, in the simplest (nonrelativistic) case, for an electron what happens is

$$\vec{F}_{cm} \equiv [q_e \odot m_e \odot \vec{a}_s] \quad (11)$$

and this is a DEFINITION. That is, considered instantly, the electron exists as a charged-mass electrical force CONSISTING OF/COMPRISED OF a charge flux  $q_e$  canonically coupled to a mass, with that subsystem then canonically coupled to a spatial acceleration vector, ALL AS A SINGLE ENTITY, WITHOUT ANY "SEAMS" BETWEEN ITS "PARTS." The  $\vec{F}_{cm}$  IS THE ELECTRON SYSTEM ITSELF; it is NOT a "spatial vector." Rigorously, it does not exist in the absence of the smeared electron mass, a priori.

Again, in assuming this force exists in the absence of the smeared mass of the moving particle, electromagnetics theory is in serious logical error.

Referring back to Figure 6, we see that, if we repeat the experiment many times and with the test charge in many locations, we have the situation shown in Figure 8.

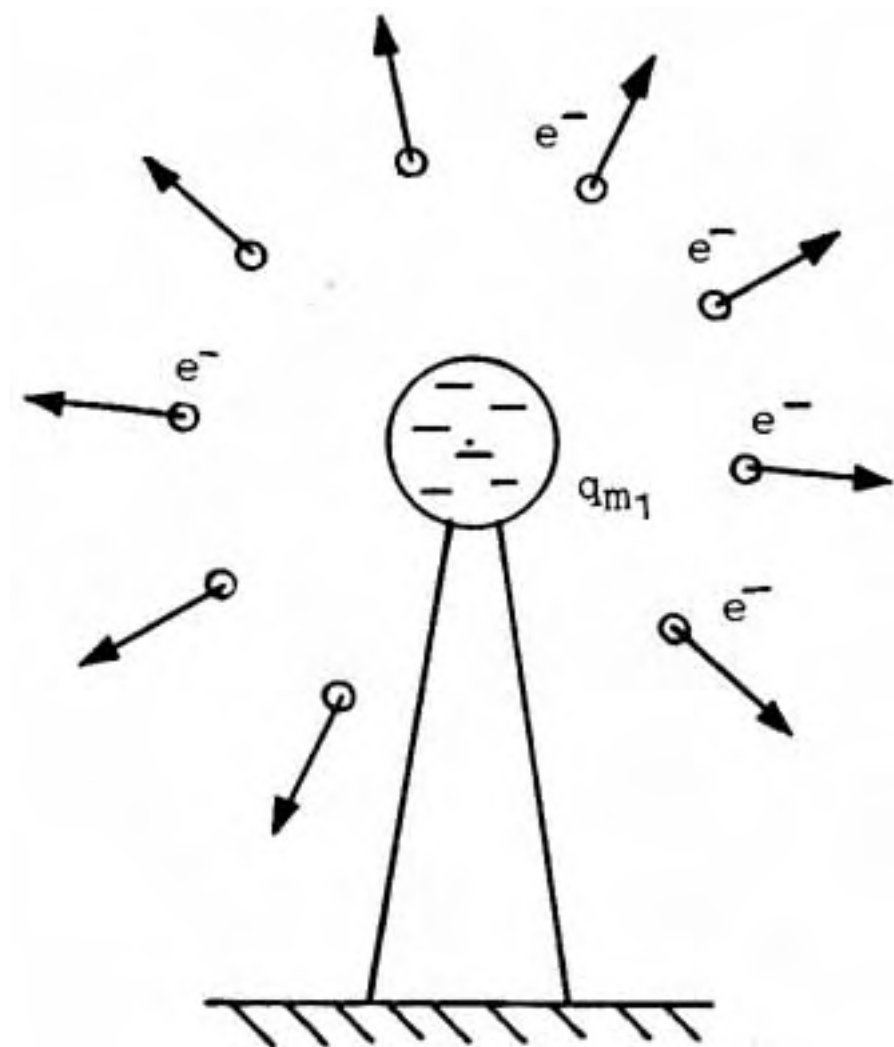


Figure 8. Repeating the "test charge" experiment.

It is found that, rigorously,

$$|\vec{F}_{cm}| \propto \left| \frac{q_{m1} q_{m2}}{r^2} \right| \quad (12)$$

where  $\vec{F}_{cm}$  is a charged mass system vector. Erroneously, this has been stated one way or another as

$$|\vec{F}| \propto \left| \frac{q_1 q_2}{r^2} \right| \quad (13)$$

where  $\vec{F}$  is assumed to be a spatial system vector. Further, this confusion has been carried over into the definition of the  $\vec{E}$ -field as:

$$\vec{E}_{cm} \equiv \frac{\vec{F}_{cm}}{m_{cm}} \quad (14)$$

In this definition,  $\vec{E}$  -- which is a charged mass system vector -- has been confused as a charged spatial system vector, where  $\vec{F}$  is regarded simply a spatial system vector! Actually, the definition of the  $\vec{E}$ -field should be

$$\vec{E}_{cm} \equiv \frac{\vec{F}_{cm}}{m_{cm}} \quad (15)$$

where  $\vec{F}_{cm}$  is a charged mass system vector. Failure to properly define the  $\vec{E}$ -field has caused the conception of the  $\vec{E}$ -field to be falsely perpetuated as existing in vacuum.

The  $\vec{E}$ -field is TREATED this way in present EM theory. Hence present theory falsely assumes that the observable  $\vec{E}$ -field can exist in vacuum.

What actually exists in space,  $\vec{E}$ -field-wise, is a special kind of ordered virtual state pattern in a series of spinning "scalar" fields. This virtual state pattern or "shadow vector" field will be explained later.

Note again that one cannot have a "force vector" existing in vacuum - a priori.

However, assume for a moment that one could have a massless force vector, as presently assumed. Let this force vector appear at a point in the vacuum. Since the vacuum has zero observable mass, it would have zero inertial resistance to this hypothetical observable force hence the observable force would instantly produce an "infinite" acceleration of its point of application, vanishing with it into the distance. Therefore our fictitious force would disappear the instant it appeared! In any case, it could not be retained at a point in the vacuum for any finite length of time, however small.

The direct implications are that (1) something other than an observable electrical force field exists in the vacuum, and (2) there must exist a more fundamental mechanism by which this "something else" generates or CREATES a change on/of an accelerating electrically

charged mass particle. (Note again that at the basic level, any particle of mass is ALWAYS quivering and accelerating, from quantal fluctuation considerations alone.) Causality has no arrow microscopically.<sup>[23](#)</sup>

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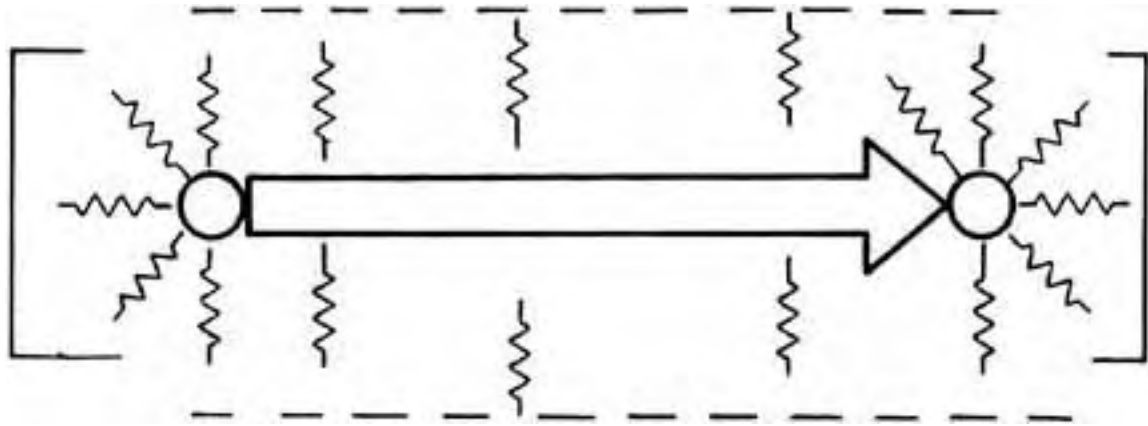
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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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## **(ADVANCED ELECTRICIAN'S VECTOR)**

Figure 9. Charged spatial (massless) vector.

-- CHARGED SPATIAL (MASSLESS) VECTOR --

We recognize now that

$$q_c \neq q_m \quad (16)$$

and that  $q_c$  is simply the virtual-particle flux that constitutes charge -- and indeed constitutes vacuum itself!

We DEFINE vacuum, based on Figure 5, as shown in Figure 10.



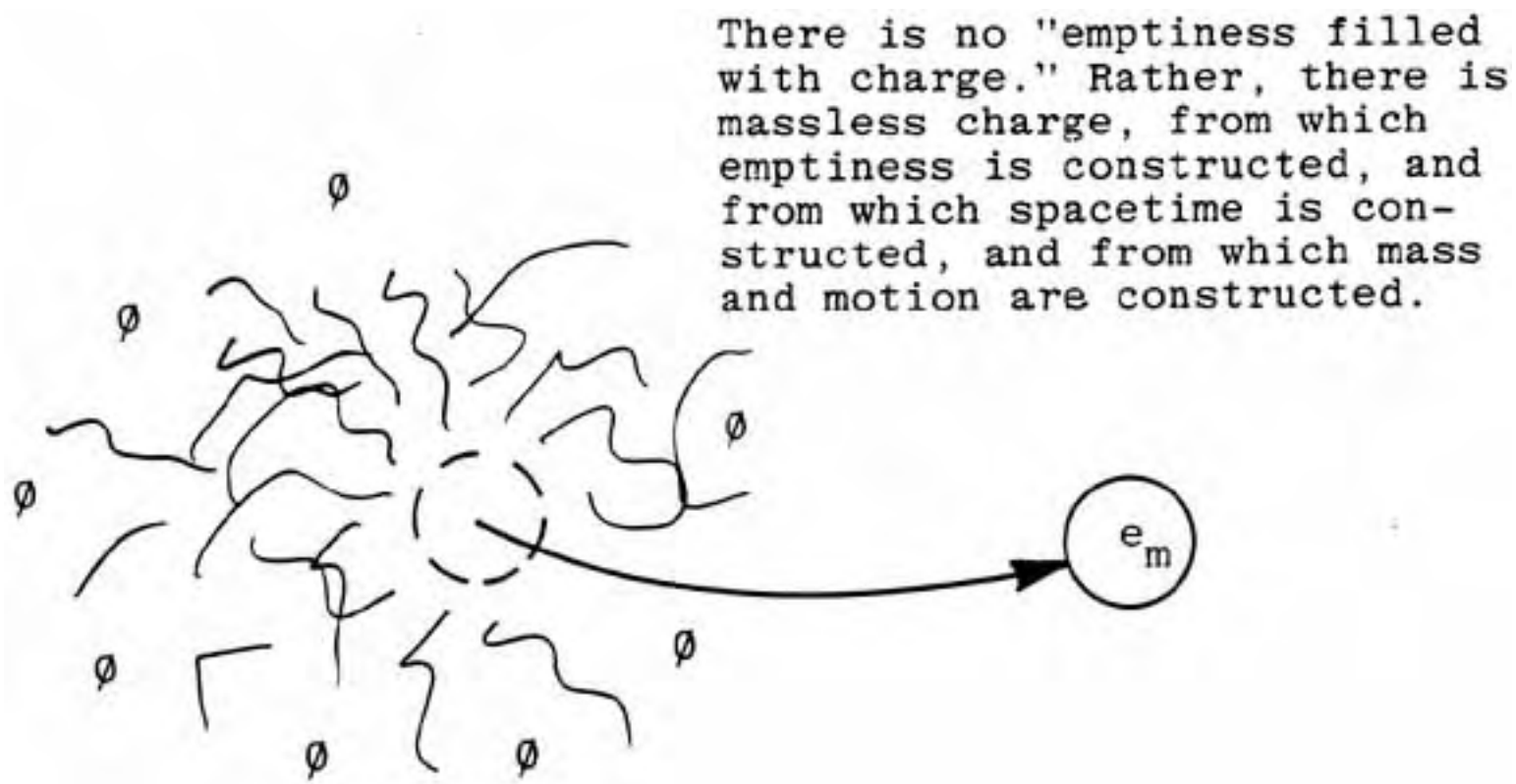


Figure 10. Removing the bare particle (mass) from a charged particle leaves the charge.  
The vacuum is DEFINED AS the charge.

That is, vacuum may be defined as pure massless charge flux. This flux IS identically "spacetime" as well. Vacuum is pure  $\emptyset$ -field (electrostatic scalar potential). Here again, in present theory it is assumed that

$$\emptyset_0 \equiv 0 \quad (17)$$

which, by our new definition of vacuum, is quite false.

We now note that, if we insist on assigning a spatial vector to the vacuum, we have the situation shown in Figure 11.

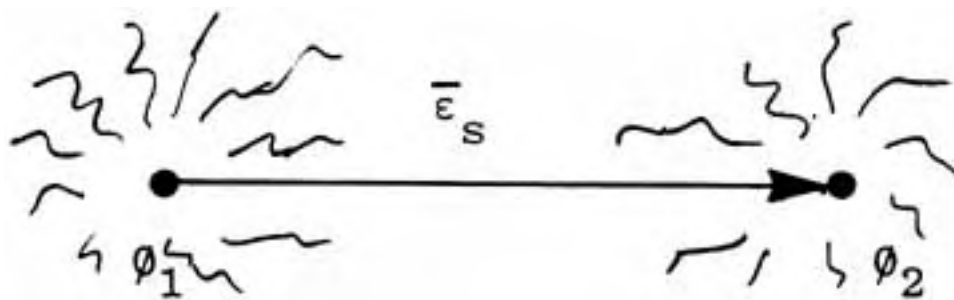


Figure 11. Assigning a spatial vector to the charged vacuum

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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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#### -- THE SHADOW VECTOR --

Note that this spatial vector  $\bar{\epsilon}_s$  represents  $-\nabla\phi_s$ , that is,

$$\bar{\epsilon}_s = -\nabla\phi_s \quad (18)$$

but  $\bar{\epsilon}_s$  cannot be a force (mass system) vector. It can only exist as an ordered pattern in the virtual flux between two separated points of the vacuum; that is, as an ordered pattern in the virtual state.

Literally,  $\bar{\epsilon}_s$  exists only as a tiny bit of order existing in great disorder.

In other words, the present EM theory is incorrect in stating that

$$\bar{E}_m = -\nabla\phi_s \quad (19)$$

in vacuum in the absence of an observable spinning charged particle, since

$$\bar{\epsilon}_s \neq \bar{E}_m \quad (20)$$

The actual existence of  $\bar{\epsilon}_s$  may be visualized in terms of successive differentials of  $\bar{E}_m$ , broken into differentials  $\bar{e}_m$  so small that, observably, each little differential's mass component m has become virtual, so that

$$\bar{e}_m \equiv \bar{e}_{vm} \quad (21)$$

where subscript m stands for mass, subscript v for virtual, and observably

$$\overline{\mathbf{e}}_{vm} \equiv d\overline{\mathbf{E}}_m \quad (22)$$

but, in the absence of a spinning charged particle,

$$\overline{\mathbf{E}}_m \neq \int d\overline{\mathbf{E}}_m \quad (23)$$

since the  $\overline{\mathbf{e}}_{vm}$  components remain individually separated. That is, in macro-time a SHADOW force vector exists, made of microscopically ordered BUT UNJOINED (unintegrated) "virtual state" vector differentials of what would be an observable mass system force vector  $\overline{\mathbf{E}}_m$  if integrated.

Thus, the " $\overline{\mathbf{E}}$ -vector"  $\overline{\mathbf{e}}_s$  that exists in vacuum is a "shadow" vector as shown in figure 12.

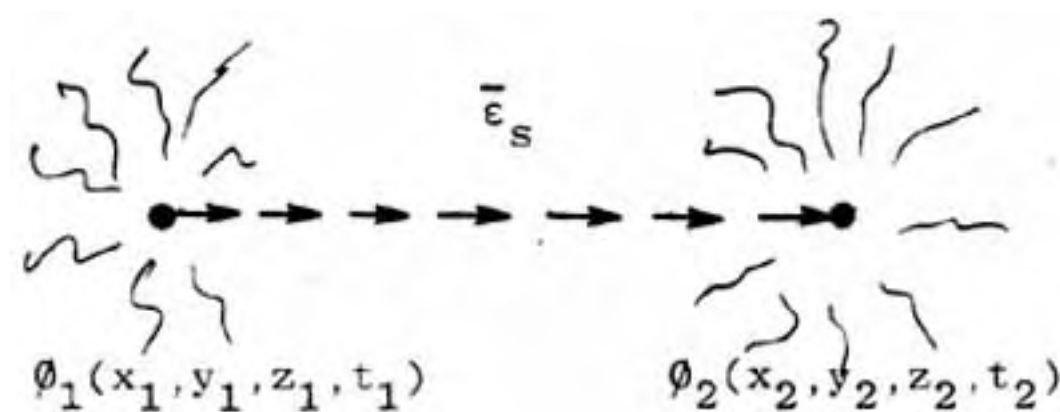


Figure 12. A "shadow vector"  $\overline{\mathbf{e}}_s$

We say that such a previous mass system vector, broken into ordered but unjoined virtual vectors by the absencing of all mass, is a SHADOW VECTOR, and we label it with a subscript vm, to represent "virtual mass" system. To the macro observer, this is the kind of "vector" that exists in vacuo.

Note that, observably, the shadow vector merely represents a special ordering in  $\nabla\phi$ . It is NOT an OBSERVABLE (mass system) vector, but it IS an ordered series of consecutive virtual vectors.

With each virtual bit vector, a virtual time exists as well, and these "virtual time bits" are also ordered consecutively (in macrotime).

I point out that any observable vector must be finite, and so it must have a finite magnitude (finite length). In the simplest case, this length  $\Delta L$  is related to a  $\Delta t$  by

$$\Delta L = c\Delta t \quad (24)$$

What I am saying is that ANY observable spatial vector is actually a spatiotemporal vector, and the MAGNITUDE of any vector is related to TIME (to the existence of that vector in time) at the most fundamental level. Suffice it to say that, if the fundamental quantum level ( $\Delta t$ ) aspect of a vector is interfered with, then the MAGNITUDE of the vector is interfered with.<sup>24</sup> That is, if we can make a time wave, we can change or affect ANY vector's magnitude, including the magnitude of mass system vectors and charged mass system vectors. Such a "time wave" can be made easily, and it has been.

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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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-- A Scalar is a Zero Vector --

Now let us look at the idea of a scalar.

A "scalar" may in a general sense be considered as the sum of the "absolute values" of the individual vector components of a system of vectors whose observable resultant is zero. That is, it represents the magnitude of the internal stress of a vector system, with the absence of a single observable directionality of the system. It also follows that every scalar is actually a stressed zero vector, and every zero vector is a scalar.

Thus we have four major types of scalars related to the four types of vectors:

$$(a) \quad s_1 = |\bar{v}_s| \quad (25)$$

$$(b) \quad s_2 = |\bar{v}_m| \quad (26)$$

$$(c) \quad s_3 = |\bar{v}_{cm}| \quad (27)$$

$$(d) \quad s_4 = |\bar{v}_{cs}| \quad (28)$$

where S stands for scalar,  $\bar{v}$  for vector, and subscript s for spatial, m for mass, and c for charged.

For example, comparing equations (25) and (26), it can easily be seen that twice as many "point-motions" is not at all the same thing as twice as many "gram-mass-motions." The two resulting vector systems are quite different.

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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

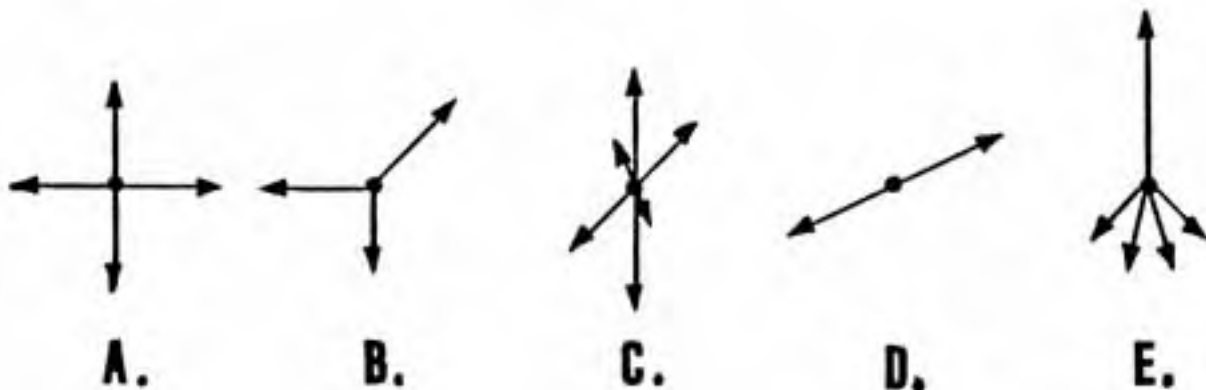
### CONCEPT

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#### -- Virtual and Observable Aspects --

We must also examine some aspects of "virtual" and "observable."

For example, we construct several spatial vector summations in Figure 13. The "resultants" of these spatial vectors are all equal. However, the actual sums, even though equal, are quite different, because their internal "stresses" (substructure forms) are quite different.



#### **SUPERPOSITION DOES NOT ELIMINATE THE VIRTUAL SUBSTRUCTURE.**

When the time aspects of the vector systems of Figure 13 are considered, one can easily understand the problem. That is, the resultant of each of these "systems" is zero, and so one can say that the vectorial "magnitude" of the system is zero since the magnitude of the resultant vector is zero. However, in each case the "action" represented by each vector element actually occurs in a finite tiny  $\Delta t$ . So: (1) The zero resultant must exist for a finite  $\Delta t$ , and (2) all the actions indicated by the system component vectors actually occur in that  $\Delta t$ . The absolute value of the "activity per unit time per unit volume" of such a zero-

resultant system thus has physical meaning, and one may refer to this notion as the "stress" on spacetime<sup>25</sup>, or the "electrostatic scalar potential" of the system. Note that this differs from the present definition of electrostatic scalar potential, which becomes just a special case of the more fundamental potential defined here.<sup>26</sup>

The derivatives of this spatiotemporal stress also have physical meaning. The time derivative is indicative of the stress on the flow of macroscopic time at a fixed spatial point, and the spatial derivative is indicative of the stress on space. Here one is confronted with the fact that what we call "space" and "time" are continually being created, directly in the physical observing/detecting apparatus itself.<sup>27</sup> That is, rigorously, "detected physical reality" exists totally in and of the mass-changes of the observer's mass or his detecting instruments. In the fundamental detection process itself, there is a flow of the rate of creation of spatial lengths and a flow of the rate of creation of time lengths. Indeed, to a linear observer the stress on the creation of the flow of time controls the flow of the creation of space, and the stress on the creation of the flow of space controls the flow of the creation of time. The change in the stress on 4-space (ordinary Minkowskian space-time) controls the "curvature of that spacetime" in the fifth dimension. The change in the stress on 5-space controls the "curvature of that 5-space spacetime" in 6-space, and so on. Development of these facets of the new concepts is beyond the scope of this paper.)

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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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-- SCALARS AND VECTORS HAVE SUBSTRUCTURES --

As can now be seen, the sum of each structure in figure 13 is observably zero. Therefore we might define the sum as a "zero spatial vector." We note, however, that it actually exists for a time  $\Delta t$  and is thus a spatiotemporal entity, rigorously.

If we define the internal stress action  $A$  in a region  $\Delta s^3 \Delta t$  of spacetime as

$$A(s^3 t) \equiv \sum_{k=1}^n |\bar{i}_s| \quad (29)$$

and the 4-space internal stress intensity or potential as

$$S \equiv \lim_{(\Delta s^3 \Delta t) \rightarrow 0} \left[ \frac{A(s^3 t)}{\Delta s^3 \Delta t} \right] \quad (30)$$

where  $\bar{i}_s$  is any internal vector in the substructure,  $\Delta s^3$  is the spatial volume (about a point) containing vector  $\bar{i}_s$ , and  $\Delta t$  is the inseparable time during which these component actions occurred, then we see that, stress-wise, all the "zero-vectors" in figure 13 are quite different in their internal stresses, 4-space potentials, and internal substructures. For the five "zero sum" vectors, OBSERVABLY we have

$$\bar{0}_1 = \bar{0}_2 = \bar{0}_3 = \bar{0}_4 = \bar{0}_5 \quad (31)$$

whether or not

$$\Delta s^3 \Delta t_m = \Delta s^3 \Delta t_n \quad (m \neq n; \quad 1 \leq m \leq 5; \quad 1 \leq n \leq 5) \quad (32)$$

But considering the substructures,

$$\bar{0}_m \neq \bar{0}_n \quad (1 \leq m \leq 5; 1 \leq n \leq 5; m \neq n) \quad (33)$$

I now point out that a scalar can be regarded as a stressed zero-sum vector, where the magnitude  $S$  of the scalar represents the internal stress intensity caused by the substructure of the zero-vector.

Thus, generally,

$$S(s^n_t) \equiv \lim_{\Delta s^n \Delta t \rightarrow 0} \left[ \frac{\sum_{n=1}^k |\bar{i}_s|}{\Delta s^n \Delta t} \right] \quad (34)$$

That is, in general any observable scalar has, consists of, and is comprised of a VIRTUAL (unobservable) substructure that is very real indeed. One must also consider the scalar as existing for some finite time  $\Delta t$ , (at least for the time of one quantum change), and the intensity of the virtual actions occurring in the spatiotemporal substructure of the scalar during that time  $\Delta t$  is proportional to the magnitude of the scalar.

Normally, the concept of a scalar -- as presently used -- makes no allowance for the scalar to exist in time, or for a virtual vector substructure, or for any patterning inside the substructure. This is equivalent to assuming that

$$A \equiv 0 \quad (35)$$

and that all  $\bar{i}_s$ 's are evenly distributed. That is, from this new viewpoint, presently the mathematical theory assumes all scalars to have an equal density of virtual activity per spatiotemporal volume in its virtual substructure, and an isotropic virtual pattern distribution of an infinite number of equal virtual vectors in its 4-space substructure.<sup>[28](#)</sup>

In the new approach, neither of these two assumptions need hold -- though in special cases they can hold. Thus present orthodox theory is just a single special case of a more fundamental approach indicated here.

Note that, by directly affecting and changing the virtual substructures of scalars and vectors, we can directly perform

virtual. state engineering, and this allows us to directly "engineer" the so-called "laws of nature" of the normal observable laboratory state and thus ENGINEER AND CHANGE PHYSICAL REALITY ITSELF.<sup>29</sup>

In the new approach, we can (observably) have

$$2 + 2 \neq 4 \quad (36)$$

or

$$2 + 2 = 4 \quad (37)$$

by the following means: In the first case (equation 36), we assume that the virtual substructures are patterned, and interact nonlinearly in such a way as to produce an extra observable. Thus we have a delta added to the normal observable scalar results of the interaction, as follows:

$$2_o + 2_o = 4_o + \Delta_{v \rightarrow o} \quad (38)$$

where subscript "o" means observable and "v" means virtual. Note that

$$\Delta_{v \rightarrow o} \quad (39)$$

indicates a delta due to virtual substructure interactions yielding an extra observable delta. This extra delta may be either scalar or vector in nature, depending on the circumstances and the particular interactions.

Note also that any vector or scalar must now be considered to HAVE, CONTAIN, and CONSIST OF an infinite substructure. And note that, similar to the scalar case, from the new viewpoint the present theory assumes each scalar (point) of the vector to have a structure similar to that of equation (34), except that now the scalars are ordered, with a linearly decreasing internal stress density per unit scalar along the line of the vector.

In the new approach, vector interaction (superposition, for example) can now violate present theory, if the two virtual substructures interact nonlinearly to produce a nonzero, observable delta. Observably (macroscopically) , this delta, again, may be either "scalar" or "vector."

This approach now becomes consistent with quantum mechanics at the foundation level.

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# TOWARD A NEW ELECTROMAGNETICS

## PART III: CLARIFYING THE VECTOR

### CONCEPT

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#### -- Substructures, Virtual Levels, and Hyperspaces --

In the new approach, our definitions and assumptions immediately drive us to a picture of an infinite set of nested levels of substructures in the virtual state. That is, any one component (scalar or vector) in one level of virtual state has an infinite number of even finer virtual components, one level more subtle.

AND THAT IS WHAT PARTICLE PHYSICS AND QUANTUM MECHANICS ALREADY REVEAL ABOUT THE STRUCTURE OF PHYSICAL REALITY.

So these definitions and assumptions now provide the basis for a new vector mathematics that is in accord with, and fitted to, modern physical observations.

We have a picture such that any observable scalar or vector contains a virtual substructure (virtual level 1). Any scalar or vector in virtual level 1 also contains a finer virtual substructure, in virtual level 2. And so on ad infinitum.

Each succeeding finer level of virtual state can be modeled as a hyperdimension (higher spatial dimension) as I pointed out in Appendix 1 to my book, [The Excalibur Briefing](#).<sup>30</sup>

Thus this approach immediately ties into hyperdimensional or hyperspatial theory -- such as Elizabeth Rauscher's 8-dimensional theory<sup>31</sup> and C. Muses's hypernumber theory.<sup>32</sup>

The new definitions and assumptions are far richer than what is allowed by tensors, though there are many similarities. Muses's work, however, essentially can encompass most of these definitions and concepts, except the distinct types of vectors are not so clearly delineated in his theory (at least to my comprehension of it.) His theory does provide a nested,

hyperdimensional structure of time, however, and thus allows "scalar" waves in the hyperspatial structure of time -- in other words, observably "scalar" waves in the virtual state structure of spacetime, or pure Tesla waves, or simply "time" waves.

These are the bare notes; from this approach, already new (proprietary) mechanisms and exact specifications to make scalar waves -- in essentially whatever quantity and degree desired -- appear to have been successfully accomplished by my close colleagues.

The new approach is real and it leads to a new physics. And I believe that the very beginnings of the new physics are already working on the laboratory bench.

Nikola Tesla discovered the most essential features of the new electromagnetics over eighty years ago and was simply suppressed for his efforts. Now, although it has been eighty years in the reborning, Tesla electromagnetics is once again loose in the Western world.

This time, let us hope that it fares better at the hands of orthodox science and large financial control groups than it did for Nikola Tesla.

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## **TOWARDS A NEW ELECTROMAGNETICS PART 4: VECTORS AND MECHANISMS CLARIFIED**

by Lt. Col. T.E. Bearden (retd.), 1983  
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TOWARD A NEW ELECTROMAGNETICS

PART 4: VECTORS AND MECHANISMS CLARIFIED

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Delivered to the 1983 Annual Conference

of the

U. S. Psychotronics Association

July 20-24, 1983

at the

University of Portland

Portland, Oregon

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### --FOREWORD --

This paper is an adaptation of the oral/visual presentation given by the author at the 1983 Annual Conference of the U. S. Psychotronics Association on Saturday, July 23, 1983.

The presentation was delivered directly from the vugraphs alone, and not from a formal, written text.

The title of the presentation at the conference was "New Electromagnetics: Where the 'Old Math' Took the Wrong Turn."

As originally conceived, the lecture was to be given in a single period of some 45 minutes and cover only the first part of this paper, the clarification of the vector concept in physical theory. The Symposium director so graciously scheduled two periods instead, allowing time to present additional material further clarifying vector and scalar waves, and to present a variety of unusual physical mechanisms that apply the concepts.

After the conference, the author prepared this paper directly from the same slides, in the same order. However, no attempt was made to match the words in this paper to the words actually delivered in the formal presentation. The gist of the two, however, are the same -- except that, in the conference lecture, the author covered (as an aside) some important additional material: (1) the nature of what actually occurs in an "electrical ground," and (2) the author's explanation of the theory of Tesla's magnifying transmitter.

An audio tape and a videotape of the author's USPA presentation were made by the conference officials. Copies are available at nominal cost from Mr. Robert Beutlich, Secretary/Treasurer, U. S. Psychotronics Association, 3459 Montrose Avenue, Chicago, Illinois 60618, U.S.A., phone (312) 478-7715.

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SLIDE 1.

# **TOWARD A NEW ELECTROMAGNETICS**

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## ACKNOWLEDGEMENTS

I would like to express my deep appreciation to two of my fellow colleagues, Dr. William Tiller and Mr. Frank Golden, for many fruitful hours of discourse and interchange on these and related subjects.

Also, I wish to thank the Association of Distinguished American Scientists (A.D.A.S.) for support and assistance in the long and arduous struggle to revise the basic foundations of electromagnetics and mechanics.

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## SLIDE 2.

### OUTLINE

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- **MAIN BRIEFING**
  - > **TRANSLATOR EFFECTS**
  - > **POTENTIAL WEAPONS**
  - > **INCIDENTS**
  - > **CONCLUSION**
- **HISTORICAL BACKGROUND**
  - > **TESLA/MORAY**
  - > **WWII AND AFTER**
- **ELEMENTS OF THE EMERGING THEORY**
  - > **LONGITUDINAL/ TRANSVERSE WAVES**
  - > **VACUUM/MASS EFFECTS**
  - > **FLAWS IN VECTOR THEORY**
  - > **IMPLICATIONS**

This presentation is one part of a three part presentation, consisting of the main briefing on physical effects, the historical background, and the elements of the emerging new electromagnetics.

In this present briefing I will not cover the historical background. Instead, first I will address the concepts of the new theory, and then I will give an abbreviated main briefing, including some weapon aspects. I will present one simple free energy motor and show how it works, and where it gets its energy.

Much of this material I have known for some time, but have hesitated to release it because it enables one to develop -- in a fairly straightforward manner -- weapons and beams (ray) systems that can disable electronics, computers, communications, and people. Anyone

handy in electronics, who has a few thousand dollars and access to bench equipment and an electronics parts supply house, can develop these weapons in his or her basement workshop. But because certain very radical elements in this country already know some of this information and may plan to utilize such devices in criminal activities, I am openly releasing the information as a warning, to be prepared.

Of course there are many good things that can be developed with this technology, including machines to heal a remarkable variety of ailments and illnesses. I strongly urge everyone to use this information wisely and only to benefit other human beings. There exists a cosmic or karmic law for those who misuse it against their fellow persons; if one does that, one will assuredly suffer the consequences.

Also, I strongly urge the development of Western defenses against the Soviet strategic and tactical weapons; already developed utilizing these principles. Unless the West wakes up to the extreme urgency of this task, in the near future we may be overwhelmed in short order by a much harsher, dictatorial system. If that should happen, it will plunge the human race into a new dark ages far more terrible than that dark period in history following the fall of Rome.

These are the final times, and this is the beginning of the final technology. The ability to directly engineer physical reality itself has been laid in our laps. Pandora's box is already spilled open, and there is no longer any stopping the new technology.

Let us prepare, then, for that which is to come.

With these introductory remarks, let us now turn to the main presentation.

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## SLIDE 3.

### CHARACTERISTICS OF SELECTED CONCEPTS

CONCEPT	CHARACTERISTIC
<ul style="list-style-type: none"> <li>• <b>ENERGY</b></li> </ul>	<b>FLOW OF OBSERVABLE MASS PARTICLES</b>
<ul style="list-style-type: none"> <li>• <b>ANENERGY</b></li> </ul>	<b>FLOW OF VIRTUAL PARTICLES</b>
<ul style="list-style-type: none"> <li>• <b>PRESENT "CHARGE"</b></li> </ul>	<b>VIRTUAL PARTICLE FLUX TIED TO OBSERVABLE MASS PARTICLES</b>
<ul style="list-style-type: none"> <li>• <b>TRUE CHARGE</b></li> </ul>	<b>VIRTUAL PARTICLE FLUX WITHOUT MASS</b>
<ul style="list-style-type: none"> <li>• <b>FLUX</b></li> <li>• <b>FLOW</b></li> <li>• <b>CURRENT</b></li> </ul>	<b>MULTI-DIRECTIONAL FLOW THROUGH A POINT</b>  <b>UNI-DIRECTIONAL MOVEMENT OF A FLUX [GRADIENT]</b> <b>UNI-DIRECTIONAL GRADIENT OF A [USUALLY CONSTRAINED] FLUX</b>

On this slide I show some fundamental defining characteristics of energy, "charge" or charged mass as presently in the theory, flux, flow, and current. These fundamental concepts are often somewhat confused in the literature.

Particularly note that the concept of energy, being tied to "the capacity to do work," is specifically tied to the concept of mass. Eventually, energy must be expressed in terms of moving masses -- specifically, in accelerating or decelerating masses.

I introduce the term "anenergy" here, specifically in relation to

the concept of a virtual particle. An energy is roughly equivalent to the present idea of "virtual energy,"

except it more precisely implies the flow or flux of virtual particles.

We also redefine charge as virtual particle flux, in order to remove the present error in EM theory where "charge" always implies a charged mass. The electrostatic scalar potential,  $\phi$  ( $\emptyset$ ), then merely becomes the intensity of the massless charge -- that is, the intensity of the virtual particle flux -- at a point. Let me point out, however, that in the new view this "point" is always in  $n$ -dimensional space, where  $n$  is equal to or greater than four. The present 3-space formulation of  $\emptyset$  is thus a highly special case.

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### SLIDE. 4

#### **QUOTE FROM NIKOLA TESLA:**

---

**"THE HERTZ WAVE THEORY OF WIRELESS TRANSMISSION MAY BE KEPT UP FOR A WHILE, BUT I DO NOT HESITATE TO SAY THAT IN A SHORT TIME IT WILL BE RECOGNIZED AS ONE OF THE MOST REMARKABLE AND INEXPLICABLE ABERRATIONS OF THE SCIENTIFIC MIND WHICH HAS EVER BEEN RECORDED IN HISTORY."**

**Nikola Tesla**  
**"The True Wireless,"**  
**The Electrical Experimenter**

One of the things we will find is that Hertz or transverse electromagnetic waves are strictly mass waves in a charged mass particle medium.

For example, transverse EM waves do not, and CAN not, exist in vacuum. Vacuum EM waves are longitudinal waves of compression and rarefaction. What is compressed and rarified is the virtual particle flux that comprises vacuum itself. Vacuum EM waves in this virtual flux are just like sound waves in air -- in the flux of molecules and atoms that comprise the atmospheric gas.

Nikola Tesla, of course, knew this and he frequently pointed out the falsity of the accepted transverse wave theory. Here is one Tesla quote, for example, taken from The Electrical Experimenter. (PAUSE)

Almost every scientist -- even the "Tesla bugs" -- have thought Tesla wrong in his adamant opposition to the idea of Hertzian waves in the vacuum.

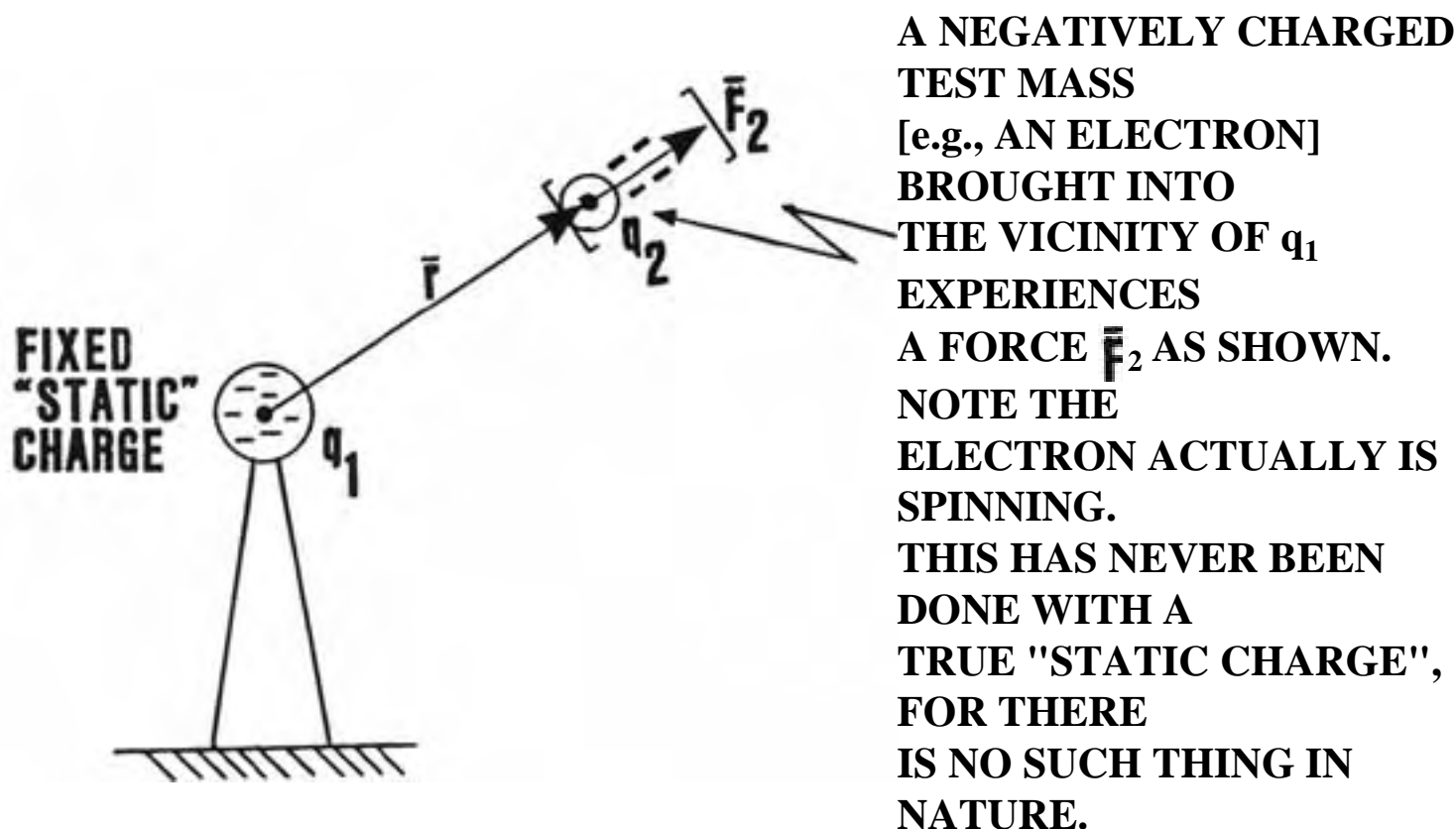
As we shall see, Tesla was right and all the present scientists and textbooks are wrong .

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SLIDE 5.

## FORCE BETWEEN TWO LIKE CHARGES



In my presentation last year, I noted some 22 fundamental flaws in present electromagnetics theory. One of these flaws was in the actual vector theory itself. As we shall discover, one cannot simply plug geometrical vectors into physical systems without making fundamental errors. The vector concept itself must be adapted, for there are now four different kinds of vectors in physics, all confused as the same thing. We will come to that shortly.

To begin, let us look at the fundamental kind of experiment, shown on this slide, from which the idea of electrical force and electric field was taken.

We have a fixed static charged object  $q(1)$  in the laboratory, and we bring in a test charged mass  $q(2)$ . The test charged mass may even be a single electron, as we illustrate here. We show in our example the fixed charge to be negative. When we release the test charge electron, it accelerates away from the fixed charged mass, as shown on the

diagram. Note that we have no force at all until we bring in the test charged mass. Indeed, we shall find that the force is actually COMPRISED OF the accelerating test electron. Specifically, it is not something mysterious which appears in vacuum and PUSHES on the electron. We shall find that FORCE IS AN EFFECT, NOT A CAUSE. It CONSISTS OF the "smeared mass" that is accelerating -- in this case, it consists of the smeared, accelerating electron.

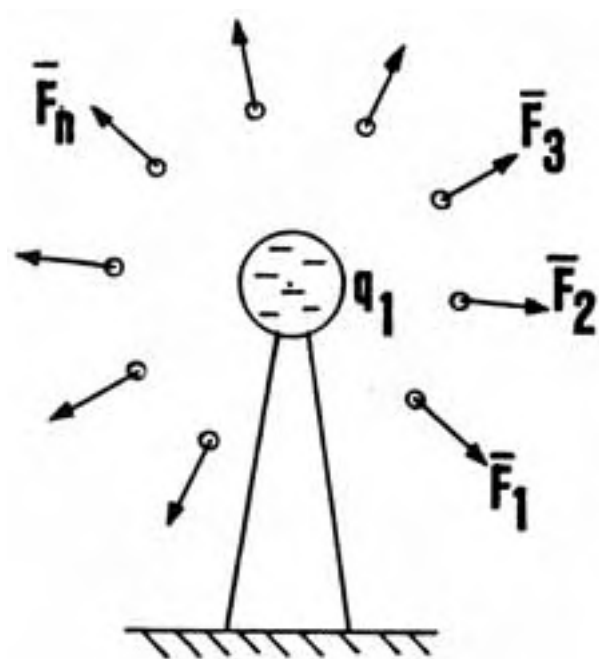
We summarize the experiment: in the absence of the charged test particle, no force exists in the vacuum. When we bring in the test charged mass, it accelerates away, and THE FORCE CONSISTS OF THAT ACCELERATING CHARGED MASS PARTICLE. The experiment does not at all address or deal with WHAT EXISTS IN THE VACUUM AROUND CHARGED MASS Q(1) IN THE ABSENCE OF TEST CHARGED MASS Q(2). Any assumption of a force existing in the vacuum is sheer speculation and not based on this experiment.

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SLIDE 6.

## REPETITIONS LEAD TO THE VECTOR "FIELD" CONCEPT



REPEATING FIGURE 4 A NUMBER OF TIMES LEADS TO SETS OF FORCE ARROWS, WHICH WE THEN VISUALIZE IN TOTAL AS A FIELD,  $\vec{E}$ , OF FORCE(S) ABOUT  $q_1$

RIGOROUSLY, THIS "FORCE FIELD" WOULD REQUIRE THAT A SPINNING CHARGED PARTICLE OF MASS EXIST AT EACH AND EVERY POINT IN SPACE ABOUT  $q_1$

On this slide, we show that, as we repeat the experiment by bringing in the test charged mass from differing directions, the same thing happens around the fixed charged mass  $q(1)$ . Test charged mass  $q(2)$  -- our electron -- accelerates radially away from  $q(1)$ .

As we repeat the experiment and draw many of the little arrows radially outward, gradually the idea of a "vector field" emerges. That is, we form the idea that, at every point in space around fixed charge  $q(1)$ , there exists one of our little vector arrows. Thus we assign a vector field to the space: to every point of it, there is assigned both a magnitude and a direction.

However, note that this does not describe the situation as it exists, at any time, in the "present." That is, rigorously any one arrow only exists whenever a little test charged mass is present and accelerating radially away.

We may take the view that the arrow WILL exist WHEN a test

charged mass is brought to that point and released. In that case, the arrow WILL exist in the FUTURE, not the present. And we may refer to that as, it POTENTIALLY exists, when and if.. ..etc.

So already we see a fundamental logical problem in the idea of such a field. It WILL exist in the future, but only POTENTIALLY exists in the present.

Of course I am not the first one to point out such difficulties; the fact that the field concept is erroneous is already well-known to foundations scientists. But it is such a USEFUL concept that it is retained.

Now the  $\ddot{E}$ -field, or electric field, is defined as "the accelerating force on a charged mass per unit charged mass accelerated by it." If there is no charged mass present to be accelerated, then there can be no  $\ddot{E}$ -field present.

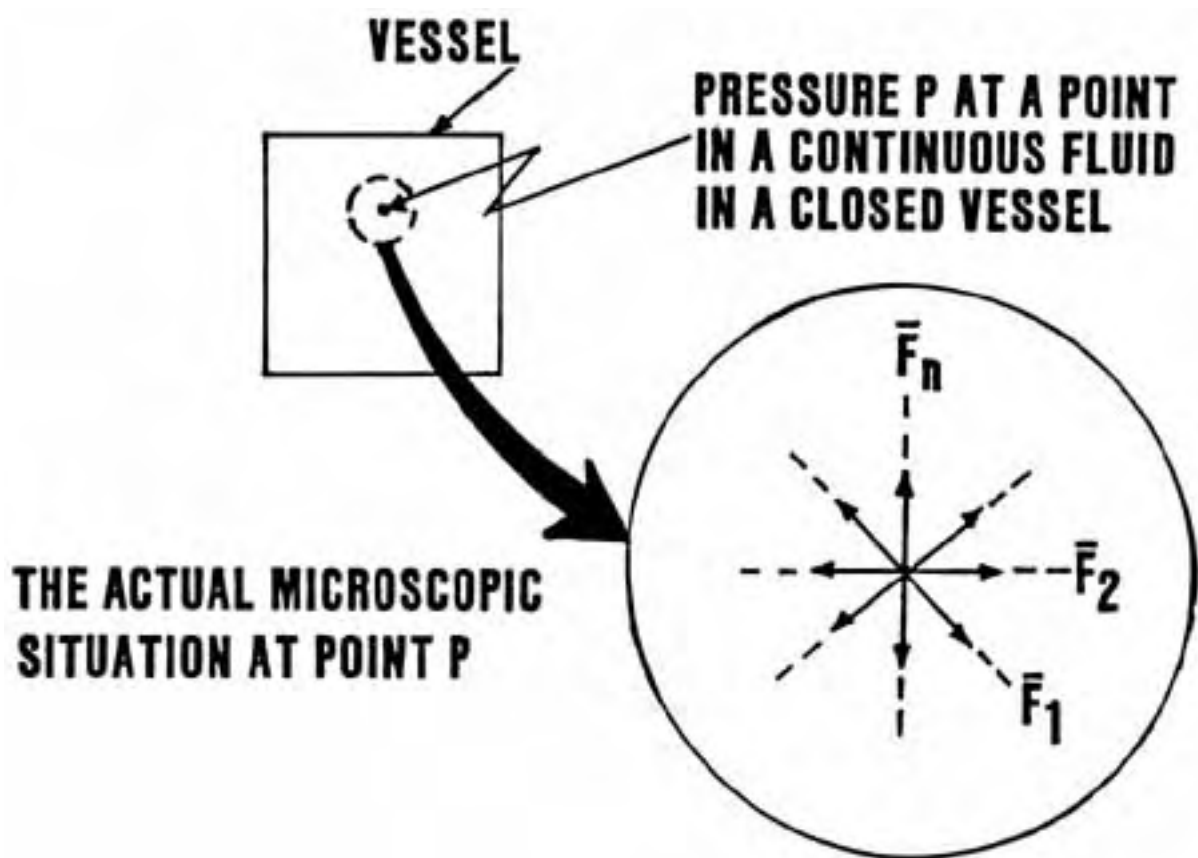
So  $\ddot{E}$ -field cannot exist in vacuum, for vacuum presupposes the absence of all observable mass.

So we can rigorously say that no  $\ddot{E}$ -field of force exists around the charged mass  $q(l)$  IN THE PRESENT. At best, it can only POTENTIALLY exist IN THE FUTURE.

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SLIDE 7.

## A SCALAR HAS A HIDDEN [VIRTUAL] VECTOR SUBSTRUCTURE



Our next slide shows that a physical scalar quantity has a hidden vector substructure.

For example, we show on the left a closed vessel containing a pressurized gas. The pressure at a point in the gas is a scalar quantity, since it has a magnitude but not a direction. However, physically what we have in the gas is a flux of individual molecules continually through any small volume, which we may let approach a point in the limit. Thus we have a flux in all directions through the point at which we specify pressure.

That is, the scalar "pressure" at a point may be said to contain a substructure of individual molecule flow vectors.

All physical process scalars have such hidden substructures. In

the equilibrium case, the summation of all the individual flux vectors yields a resultant vector zero.

Thus we take the view that ANY PHYSICAL PROCESS SCALAR IS ALSO A ZERO VECTOR, AND ANY ZERO VECTOR IS A SCALAR AND CONTAINS A SUM-ZERO HIDDEN VECTOR SUBSTRUCTURE.

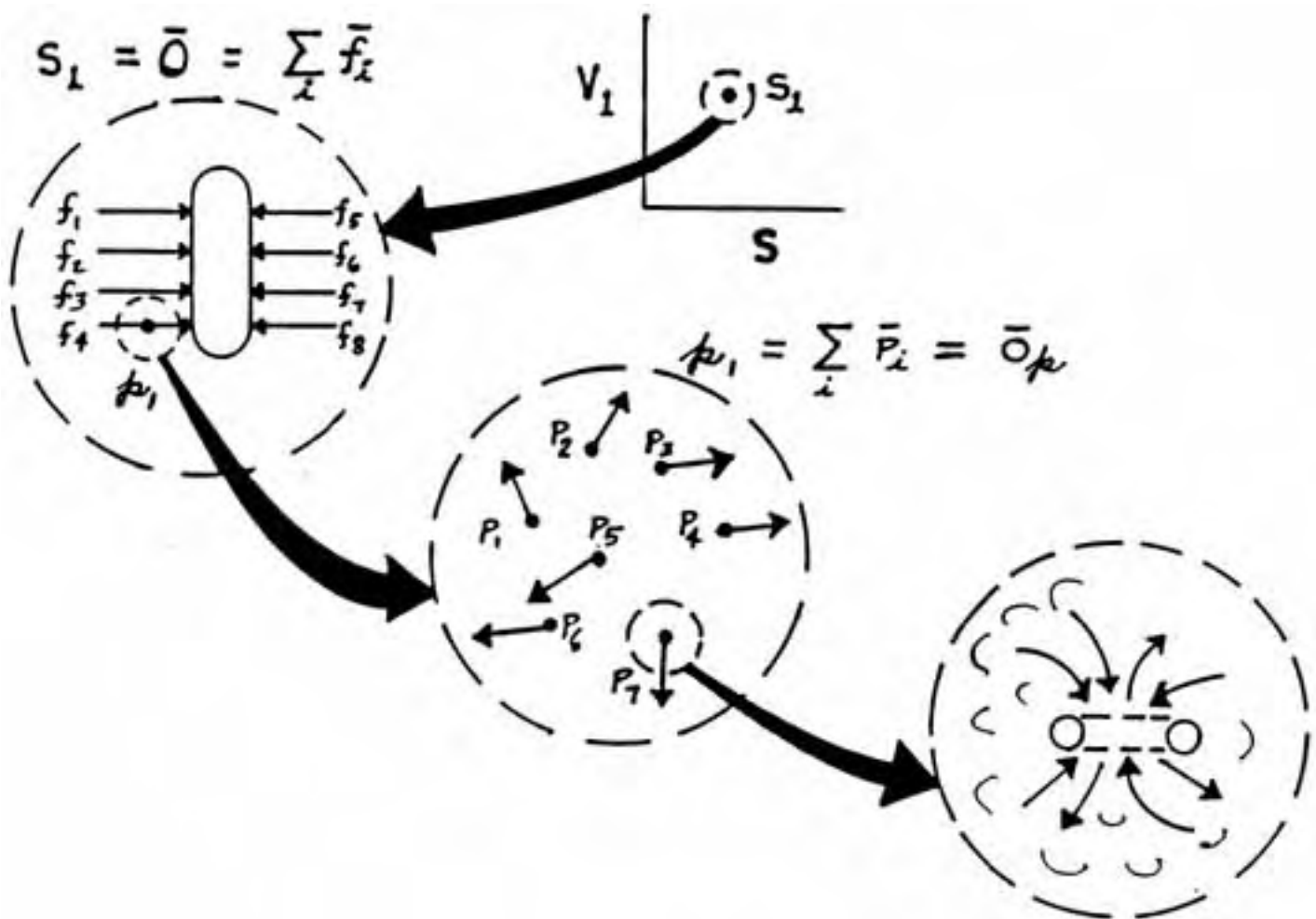
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SLIDE 8.

## SCALAR AND VECTOR SUBSTRUCTURES



Now let us see if we can do some unusual thinking about the hidden vector substructure of a scalar or zero-vector.

On the leftmost figure in this slide, we show a plate with balanced opposing forces. The vector summation of all the forces' is zero, so the system has no resultant vector. The plate therefore does not move. However, the plate -- that is, the medium in which the forces act -- is stressed, much like the previous example of pressure in a gas. The difference is that now the stress is patterned in its substructure, and not random. Now suppose we rhythmically vary the forces, each the same, in a regular manner in time. Yet we maintain a continuous balance, so there is never a system resultant greater than zero. In this case, we maintain our vector zero, but we are producing regular stress waves in the plate medium..

I think you now can see that I can vary the individual opposing vector pairs so that rhythmic waves flow from top to bottom, or from bottom to top. That, of course, will describe a vector gradient traveling through the medium, and that will be an ordinary "vector wave." Is there any way I can make waves through the medium, and not have such vector waves ever appear?

Indeed there is, if I look further into the substructure. Take one point on one of the vectors shown acting on the plate in the left diagram. That point is a scalar, and it also has a substructure of even finer vectors, as shown in the lower middle figure. And any point in one of these second-order hidden vectors is a scalar and composed of a still finer hidden vector substructure, as shown in the lower right figure. This process repeats ad infinitum, and all is structures within structures. At least it can be modeled that way, for it already is treated that way in particle physics.

Now go back to the second order vector substructure. Here I can establish whatever patterns I wish, and not affect the first order pattern shown in the figure on the left. I can even rhythmically vary things in the second order substructure, and leave a blissfully unchanged first order substructure, to the first order observer.

So I can make as many waves; as I wish through the medium, as long as I stay second order or higher, and the external observer will never see any change at all unless he has a special detector of some sort to detect the lower substructure changes.

As I showed in the Appendix to my book, [The Excalibur Briefing](#), these substructures are in reality the same thing as [hyperspaces](#). And movements in them can proceed much faster than the speed of light.

So I can have higher order signals and waves through the stressed medium without changing the overall first order stress in the medium.

This is a sort of super-relativity; the present relativity is just a special case.

Superluminal communication systems are perfectly possible, but not with the present first order transmitters and receiver/detectors.

Note also that higher order stresses -- stresses in the higher order substructures -- represent special stresses in time, and time has an internal stress-pattern substructure. The higher order stress waves are phase waves or phase fluctuations in that respect.

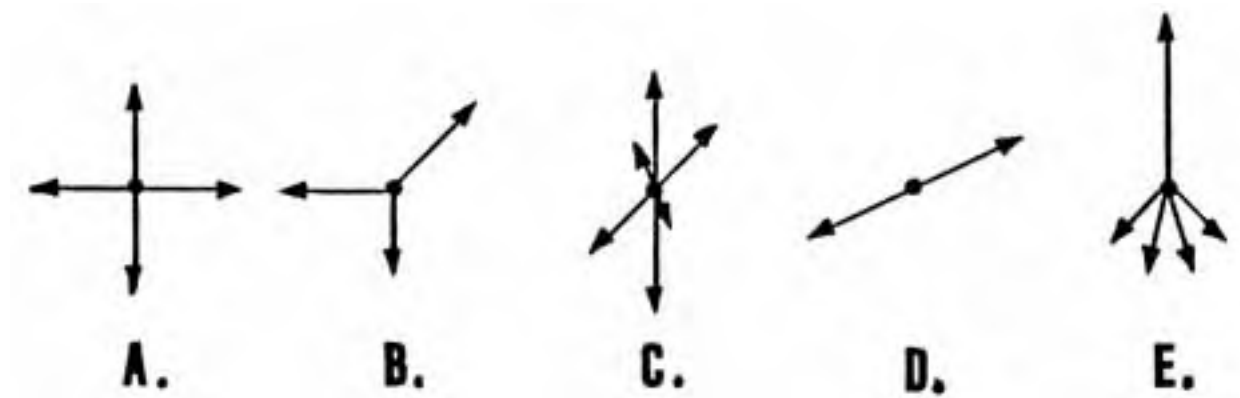
Also note that Charles Musés has already created the hypernumber mathematics of the structure of time, and it is largely in his mathematics that these concepts will have to be mathematically modeled.

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SLIDE 9.

## **SUPERPOSITION DOES NOT ELIMINATE THE VIRTUAL SUBSTRUCTURE**

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**TWO OR MORE MACROSCOPICALLY "EQUAL"  
VECTORS OR SCALARS CAN DIFFER  
DRASTICALLY IN THEIR VIRTUAL  
SUBSTRUCTURE DISTRIBUTIONS. EVEN TWO  
"ZEROS" MAY BE DYNAMICALLY DIFFERENT  
DUE TO THEIR DIFFERING SUBSTRUCTURES.**

---

Next we show some simple substructures of a zero vector. All of these vector systems sum to zero vectorially. Note that if we superpose two of these structures, all substructure vectors are still present., and the vector summation is still zero.

Also notice that, from the standpoint of substructuring, zeros can be and are drastically different.

We can even make rhythmic waves in the substructure by superposing patterned zero vectors in a regular fashion.

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## PHYSICAL VECTORS

---

- **VECTOR: A "SMEARED PARTICLE"**
- **FOUR MAJOR PARTICLES IN PHYSICS:**
  - **POINT [MASSLESS, CHARGELESS]**
  - **MASS [CHARGELESS]**
  - **CHARGED MASS**
  - **CHARGED POINT [MASSLESS]**
- **LEADS TO FOUR MAJOR VECTORS:**
  - **GEOMETER'S**
  - **MECHANIC'S**
  - **ELECTRICIAN'S**
  - **ADVANCED ELECTRICIAN'S**

In quantum mechanics, as we approach the quantum level, we find that the notions of a particle (static concept) and a wave become inseparable. That is, any particle becomes a "smear" in length and time, and it becomes inseparable from its smear. At the quantum level, there is no separate energy, length, mass, momentum, energy, or time -- all are welded together inextricably into a quantity called "action," having the units of angular momentum.

So at the fundamental quantum level, a moving point becomes a smear, and a vector represents a physical, undifferentiated entity.

To go quickly, we now define a vector as consisting of a smeared particle. That is, the particle is smeared in both time and length, and it is not differentiated from time or length.

There are four kinds of particles in physics which can be smeared to form vectors. First, there is a point in space or spacetime. This point may be approximated as massless and chargeless. At least that is the way the geometers of old conceived it in the abstract, and so the idea of a "point" in space assumes it to be chargeless and massless. Second, there is a tiny particle of mass, often abstracted to be a "point-mass," but visualized as having no charge. This is the mechanic's particle. Third, there is a tiny charged mass, such as an electron, and this is the electrician's particle. Again, it is often abstracted as a charged point-mass. Fourth, there is a charged point, having no mass, and this is the advanced electrician's particle, which he uses to form the idea of potentials and fields.

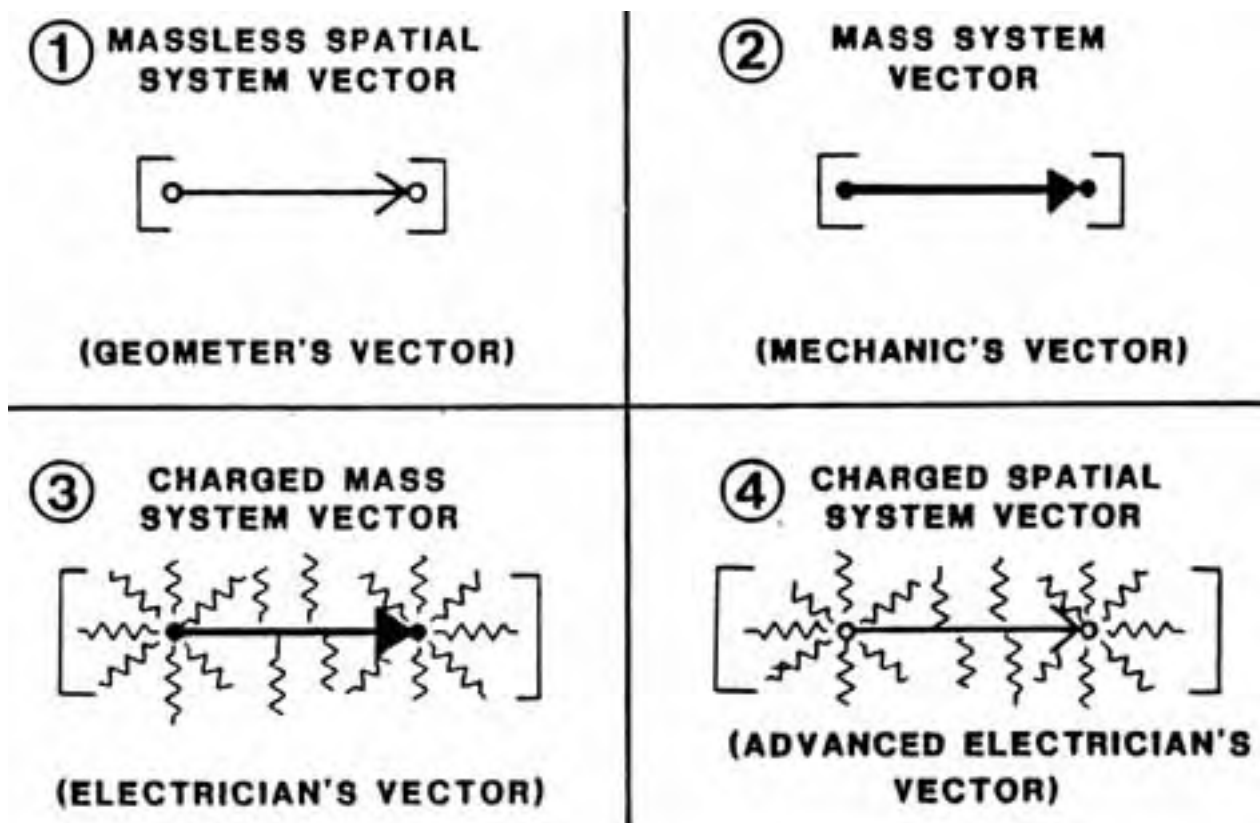
Smearing these four particles at the fundamental quantum level produces four different kinds of physical vectors: the geometer's, the mechanic's, the electrician's and the advanced electrician's vectors. They are all different.

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SLIDE 11.

### THE FOUR VECTORS OF PHYSICS



On this slide we show a graphic illustration of each of these vectors.

Note that they may be visualized as smeared particles, but the particle is not separate from the smear in time and length.

Each vector must be considered as a unitary entity -- it is a special kind of quantum, if you will.

Each is a special quantum of motion.

And Dewey Larson has it right when he says, "All is motion."

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## FORCE DEFINITION

---

- *A TRUE DEFINITION IS AN IDENTITY.*

$$F \equiv d/dt (mv)$$

- **FORCE CONSISTS OF  
THE TIME RATE OF CHANGE OF  
MOMENTUM**
- **MOMENTUM IS A MASS SMEARED  
THROUGH  
A LENGTH IN A CERTAIN TIME**
- **FORCE CONSISTS OF MASS-  
MOTION-CHANGE**
- *FORCE IS AN EFFECT, NOT A CAUSE !*



We now look a little closer at the concept of a force.

I point out that a true definition is an identity. If a supposed definition of an entity is not an identity for that entity, then it is not a definition at all, but only a statement ABOUT the entity.

It may come as somewhat of a shock to the normal engineer and scientist that the foundations concepts of physics -- such as force, mass, energy, etc. -- are ALL in serious difficulty and contain many unresolved logical conflicts.

Force is in that kind of difficulty, and it has that kind of logical conflict.

In fact, in its force equations, physics has not even applied its own present definition of force.

As we show here, force is generally defined as the time rate of change of momentum.

If that is true, then as an identity the definition states that a force CONSISTS OF the time rate of change of momentum.

And of course, momentum is mass times velocity. Hence momentum is a mass smeared through a length and through a certain time.

Force then consists of the time rate of change of that smearing. That is, we smear the mass through time and length, faster or slower.

But if force CONSISTS OF that smearing change, it does not CAUSE it.

Force is thus an effect or result, not a cause.

This implies that there is a more fundamental mechanism that causes or generates force itself -- ANY force. If we can find that hidden mechanism, we may well find the long-sought unified field theory, since it will unify all forces on a common mechanism.

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SLIDE 13.

## FORCE IS AN EFFECT NOT A CAUSE

---

1.  $\bar{P} = M\bar{V}$  (MACROSCOPIC)
2.  $\bar{P} \equiv \overline{[M\bar{V}]}$  (MICROSCOPIC)
3.  $\bar{F} = \frac{d\bar{P}}{dt}$  (MACROSCOPIC)
4.  $\bar{F} \equiv \frac{d\bar{P}}{dt} \equiv \frac{d}{dt} \overline{[M\bar{V}]}$  (MICRO)  
 $\equiv \overline{[M\bar{V} + M\bar{a}]}$
5.  $F \equiv \overline{[M\bar{a}]}$  (NONRELATIVISTIC)
6. **FORCE CONSISTS OF A “SMEARED MASS”**
7. **IT IS MASS-ACCELERATION, IT DOES NOT CAUSE IT.**
8. **FORCE IS AN EFFECT, NOT A CAUSE!**

On this slide, we show briefly how one might express this idea in mathematical symbology.

Macroscopically, momentum consists of mass times velocity. Microscopically, the mass and the velocity are inextricable, and it is not proper to speak of a "mass in motion," but only of "mass-motion." We show this in equation 2.

We take the macro definition of momentum, as shown in equation 3, and express it for the microscopic, unseparated case, as shown in equation 4.

In the nonrelativistic case, we may consider  $\dot{m}$  to be zero, since the time rate of change of mass is almost zero. In that case, force may be defined for the microscopic case as a smeared accelerating mass, as shown in equation 5.

Force thus consists of the welded mass and acceleration, with no seam in the middle.

It IS mass-acceleration; it does not CAUSE it. Therefore force is an effect, not a cause.

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## FORCE AND $\bar{E}$ -FIELD DO NOT EXIST IN VACUUM

---

1. 
$$\bar{F}_p \equiv \overline{[M_p \circ \bar{a}_p]}$$

2. WITHOUT M, THERE IS NO  $M_p$ , NOR  $\bar{F}_p$

3. HENCE FORCE DOES NOT EXIST IN VACUUM.

4. 
$$\bar{E}_{cm} \equiv \frac{\bar{F}_{cm}}{q_{cm}}$$

5. WITHOUT M, THERE IS NO  $\bar{F}_{cm}$ , NOR  $q_{cm}$ .

6. HENCE  $\bar{E}$ -FIELD DOES NOT EXIST IN VACUUM.

7. SIMILARLY,  $\bar{B}$  AND  $\bar{G}$  DO NOT EXIST IN VACUUM.

8. NO FORCE FIELD EXISTS IN VACUUM.

But if force CONSISTS OF mass welded to acceleration, it cannot exist in the absence of mass.

Hence force does not exist in vacuum.

Further, the  $\ddot{E}$ -field (Electric field) of a charged particle is defined as the force on a charged mass, divided by the mass. That is, the  $\ddot{E}$ -field is thought to represent the force per unit charged mass. And then it is assumed to exist in vacuum.

But vacuum is without mass or charged mass, observably. Without mass, neither force nor charged mass exists.

Therefore the  $\ddot{E}$ -field does not exist in the vacuum.

Magnetic field (B) and gravitational field (G) are similarly defined, and they have the same logical difficulties.

Therefore neither magnetic field nor gravitational field exist in vacuum.

A priori, NO force field exists in vacuum.

The greatest error in physics has been the assignment of a force as a cause, and thus assigning it to the vacuum. The force is an effect, and it never exists in vacuum, a priori.

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## COROLLARIES

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- **MORE PRIMARY MECHANISM  
CAUSES/GENERATES  
FORCE -- ANY FORCE**
- **FORCE DOES NOT EXIST IN VACUUM,  
SINCE  
VACUUM IS THE ABSENCE OF MASS**
- **FORCE FIELDS DO NOT EXIST IN  
VACUUM**
  - **E-FIELD**
  - **B-FIELD**
- **TRANSVERSE [HERTZIAN] WAVES  
DO NOT EXIST IN VACUUM**

Without belaboring the issue, I now point out and summarize some of these conclusions.

First, a more primary mechanism causes or generates force -- ANY force.

Second, force implies the presence of mass a priori. Force does not exist in vacuum, since vacuum is the absence of mass.

Third, no force fields of any kind exist in vacuum, including  $\vec{E}$ -field, B-field, and gravitational field.

Fourth, since Hertzian waves are defined in terms of  $\vec{E}$  and H force fields, and these fields do not exist in vacuum, then Hertzian waves do not exist in vacuum.

Tesla pointed out long ago that vacuum EM waves are longitudinal waves, not Hertz waves. Vacuum EM waves are similar to sound waves in a gas.

The Hertz wave exists as a matter wave in the electron gas in a transmitting antenna, and in the electron gas in a receiving antenna, but does not exist in the vacuum in between the two antennas. Between them, EM waves are longitudinal waves.

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## ENERGY IS DERIVED, NOT FUNDAMENTAL

---

- **ENERGY IS CONGRUENT TO WORK**

$$dW = \vec{F} \cdot d\vec{s}$$

- **BUT FORCE IS AN EFFECT, NOT A CAUSE**
- **THUS WORK IS AN EFFECT, NOT A CAUSE**
- **ENERGY  $\equiv$  WORK CAPACITY**
- **A MORE FUNDAMENTAL MECHANISM GENERATES "ENERGY"**

$$\Delta E = \frac{\Delta A}{\Delta T}$$

- **ENERGY IS AN EFFECT, NOT A CAUSE**

Energy is usually taken as "the capacity to do work" at some future time. In other words, when we refer to the energy of something, we refer to HOW MUCH WORK IT CAN DO IN THE FUTURE, IF AND WHEN WE ARRANGE FOR IT TO DO IT. Rigorously, a body has no "work" at a particular instant in time, so we use "energy" to refer to potential work that can, or will, be done in the future. Thus energy is always congruent to work in the future.

And for that reason, the units of energy are the units of work; the only difference is in the time the work is done, relative to the "now" or "present" we are speaking of.

Energy is the potential for work to be done in the future.

But what is work?

Well, work is defined in terms of the movement of a force through a distance. And it is understood that only the projection



of the force along the line of movement is "working." Thus work is defined differentially as shown on the slide. The differential of work is equal to the dot product of the moving force times the differential of displacement.

But as we have seen, force is an effect, not a cause.

That is, when we calculate the work done, it's always in the past, never in the present or future. It's always been DONE, and has been expended.

Being in the past, it's gone forever, so it certainly isn't the CAUSE of anything which happens in the future.

Thus work is an effect, not a cause.

That's interesting, because then it certainly does not directly generate "energy," since energy is something in the present which speaks of future work to be done.

Rigorously, the fundamental quantum -- which is what exists in the present, in unseparated and unquantized form -- consists of action. NOT energy, NOT time, NOT length, NOT momentum exclusively, but all of these INclusively.

And a change in energy occurs when a quantum is separated at a certain rate in time. Thus delta energy equals the time rate of change of action, or delta action divided by the delta time used in separating the quantum and fissioning it into parts (collapsing the wave function).

Thus energy itself is an effect or result of a more fundamental mechanism, and it is not a cause.

In quantum mechanics all this has been neatly "buried" in the mysterious "collapse of the wave function," which is supposedly what "causes" everything to happen. And then we swear that what results after the collapse is a totally statistical selection from the possible states of the system we are examining. We thus say that the microworld is totally statistical at base. Of course we also build a wave equation or wave function which propagates forward in time with rigorous causality, and that wave or function absolutely controls the basket of "possible states" allowed.

All that says is that the "wave function times time" is what exists in the present, when observation has not been made by "stopping time." And then we "stop time" in a rather blunt manner, somewhat like firing a billiard ball blindly into a group of billiard balls on a table, and we live with what gets hit and pops out.

If we examine this "time" that is flowing, look into its substructure, and arrange that substructure as we will, we can control which "billiard ball" is hit and which pocket it goes into. By working on the vector substructures of time, we can thus deliberately control the microworld and make it causal, not

statistical. Quantum mechanics is in error in stopping where it has; it is presently only a first order approximation of the real quantum mechanics that awaits.

Einstein was correct after all; God does NOT play dice with the universe when one considers all levels.

One finds oneself in a statistical situation at one level only when the constituent sublevels of it are uncontrolled.

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SLIDE 17.

## **EXISTENCE IN, AND PASSAGE THROUGH, TIME**

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- **IN RELATIVITY, TRANSLATION OF A BODY AND  
PASSAGE THROUGH  
TIME ARE RELATED**

$$\Delta L = C \Delta T$$

- **"MASS" IS SPATIAL**
  - **DOES NOT EXIST IN TIME**
  - **"MASS-TIME" EXISTS IN TIME**
- **VIRTUAL FLUX TO AND FROM A BARE  
PARTICLE DETERMINES ITS  
"PASSAGE THRU TIME"**
- **SPHERICAL SPIN OF A MASS PARTICLE [L<sup>3</sup>]  
COUPLES IT TO THE  
SPACETIME VACUUM [L<sup>3</sup>T] VIRTUAL PARTICLE  
FLUX**
- **PASSAGE THROUGH ORDINARY TIME IS  
CONTROLLED BY  
CREATION AND ANNIHILATION OF QUANTA**

On this slide, we simply point out that translation of a body through space and its passage through time are related, according to relativity.

Now "mass" is spatial.

It does not exist in time.

Only things which contain the unit of time can "exist in time."

Otherwise, the thing only exists as such when the passage of time has been momentarily stopped -- usually by photon emission and the consequent carrying off of the time unit by the photon.

Since every mass that has temperature -- and every mass does -- is continually absorbing and emitting photons, then the mass is continually grabbing a time tail (absorption) and losing it (emission) shortly thereafter.

Masstime is what exists in time, not mass.

And every mass particle is continually turning from mass to masstime to mass, etc.

Indeed, it is the summation of the absorption and emission of virtual subquanta by a mass particle -- i.e., its "charge" -- that determines its rate of flow through "time."

And the spherical spin of a mass particle couples the particle of mass to the spacetime vacuum; that is, to the virtual particle flux.

Passage through ordinary time is controlled by creation and annihilation of quanta, and these processes are controlled by substructure (subquantal) actions and interactions.

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SLIDE 18.

## SOME IMPLICATIONS

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- **MODIFIES CONSERVATION OF CHARGE**
- **MODIFIES CONSERVATION OF ENERGY**
  - *MASS*
  - *ENERGY*
  - *AN ENERGY (MASSLESS CHARGE)*
- **MODIFIES NEWTON'S LAW**
  - *FOR EVERY ACTION, THERE IS AN OPPOSITE AND EQUAL REACTION*
  - *REACTION NEED NOT BE LOCAL*
  - *REACTION NEED NOT BE ANTIPARALLEL*
- **UNIFIED FIELD THEORY**

Without belaboring the issue, I now simply point out some implications of the new approach.

First, we modify two laws -- the conservation of charge and the conservation of energy -- by combining them into one law, a new conservation law in which anenergy is conserved.

Neither charge per se nor energy per se need be conserved; but the overall anenergy (massless charge) equivalency is what is conserved. This allows us to derive mechanisms for free energy from the vacuum, for example. These mechanisms readily violate the present conservation of energy law, but do not violate the overall conservation of anenergy law.

It is the total anenergy equivalency of mass, energy, and massless charge that is now to be conserved in general. The old laws are now just special cases.

Also, Newton's third law -- for every action there is an equal and opposite reaction -- is modified. It still applies, but in changed form.

The reaction still occurs, but it need not be local, and it need not be antiparallel to the original action.

Thus it is now possible to design and build a "locally reactionless" inertial space drive for a vehicle.

The final implication is that the common mechanism producing force -- any force -- provides a unified field theory. Specifically, it provides one which easily lends itself to direct engineering. It is not esoteric nor mysterious. It is practical and physical, and it can be done with some modifications to our present electrical circuits and devices.

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## CONSERVATION OF ANENERGY (AE): (AN EXPANDED ENERGY CONSERVATION LAW)

### 1. CONSERVATION OF CHARGE:

- "CHARGE" = MASS ( $M_c$ ) + CHARGE ( $AE_c$ )
- $|M_c| + |AE_c| = K_1$

### 2. CONSERVATION OF ENERGY:

- DYNAMIC ENERGY ( $E$ )
- ENERGY EQUIVALENCE OF MASS ( $M_E$ )
- $|E| + |M_E| = K_2$

### 3. ADDING (1) AND (2):

$$|M_c| + |AE_c| + |E| + |M_E| = K_1 + K_2 = K_3$$

### 4. LETTING $|M| = |M_c| + |M_E|$ ,

$$|M| + |E| + |AE_c| = K_3$$

### 5. LETTING $|M| = AE_1$ , $|E| = |AE_2|$ , $|AE_c| = AE_3$ ,

$$AE_1 + AE_2 + AE_3 = K_3$$

We briefly show a simplified derivation of the new conservation of anenergy law.

We express the conservation of charge law by correcting the term "charge" to show its true meaning: charged mass. We use the absolute value symbol to mean the "anenergy equivalency."

As shown on the slide, we account separately :for the mass ( $m_{-c}$ ) of the conserved charges and the virtual particle charge flux (the anenergy --  $AE_{-c}$ ) of the charges conserved. That law now says that the absolute values of the masses and the massless charge fluxes have a total constant summation.

For a dynamic mass, we do a similar thing, in this simplified case ignoring potential energy of position, and taking the energy equivalence of the dynamic energy ( $M_{-E}$ ) and the rest mass energy of the particles,  $M_{-E}$ . The conservation of energy now states that these two terms have a constant absolute value summation.

We add equations 1 and 2, getting equation 3. We consolidate like terms to get equation 4.

Expressing all terms in their anenergy equivalencies (absolute values), we get equation 5, which is the overall conservation of anenergy equivalency.

Note that we now can change mass into energy or anenergy (massless charge), energy into mass or anenergy, and anenergy into mass or energy.

Thus we can turn everything into pure vacuum ether (pure massless charge, pure anenergy, pure electrostatic scalar potential, pure stress on spacetime) or we can turn part of the vacuum into energy or particles of mass.

Vacuum now becomes a very real thing indeed.

It is pure anenergy.

Pure massless charge, pure electrostatic scalar potential, pure "broken bits" (subquantal bits) of (quantized) energy.

The vacuum is identically the virtual state.

It is not an emptiness filled with virtual things; rather, it IS the sum total of those virtual things, for they are totally unseparated until some sort of "conceptual observation" is invoked.

Physics should have adopted Einstein's suggestion that the vacuum, complete with its EM and gravitational fields, be called the ether.

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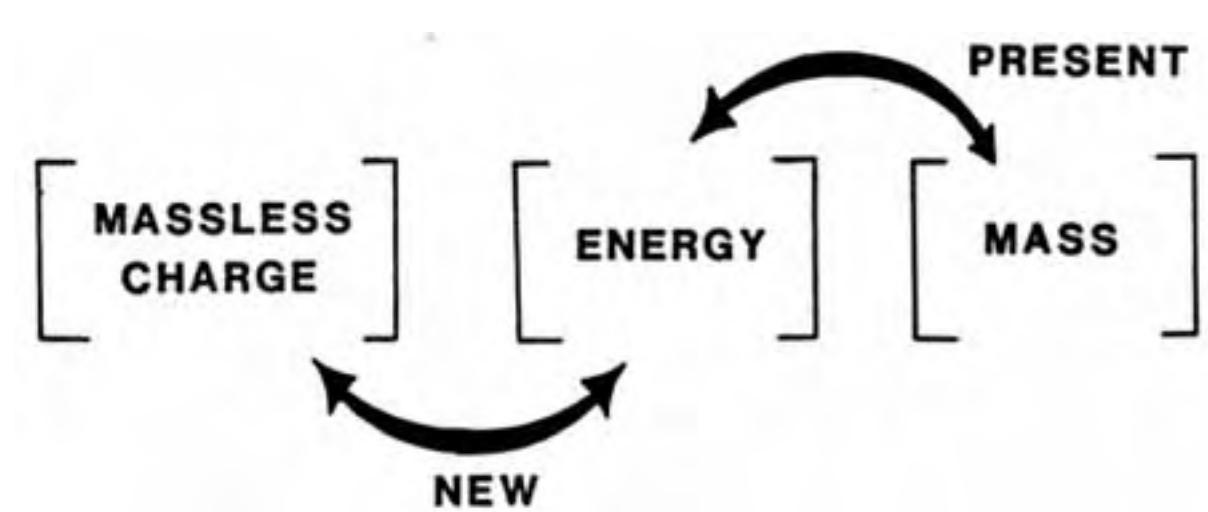
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SLIDE 20.

## FREE ENERGY IS ALLOWED

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- **ANY ONE-WAY GATING PROCESS FROM AN ENERGY TO ENERGY YIELDS "FREE ENERGY" SINCE THE AN ENERGY IS AUTOMATICALLY REPLENISHED BY THE UNIVERSE.**



Now we can put the search for free energy devices on a rigorous scientific basis.

As shown here, mass and energy are translatable one into the other. So are massless charge and energy.

And the universe is filled with fantastic amounts of anenergy; ultimately, that is what the universal vacuum IS.

Any one-way gating process from anenergy to energy yields "free energy" since the anenergy is automatically replenished by the universe.

A sort of Maxwell's demon, after all, is what we need. Only we need one which works with the virtual state, not observable molecules.

Fortunately nature has provided several Maxwell's demons of this sort, if we but recognize them and learn to use them.

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SLIDE 21.

## **SCALAR POTENTIAL CAN FORCE THE RELATIVISTIC CASE**

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- **FOR SCALAR POTENTIAL  
ENERGY  
OF APPRECIABLE SIZE  
RELATIVE TO  
A PARTICLE'S REST  
ENERGY.**
  - **NEWTONIAN  
MECHANICS AND**
  - **THE SCHRÖDINGER  
EQUATION**
- **MAY BE INADEQUATE**
  - **EVEN IF  $v/c$  IS SMALL**

Bloch & Crater, "Lorentz-invariant potentials and the non-relativistic limit," American Journal of Physics, Vol. 49, No. 1, Jan. 1981, pp. 67-75

First, let us now digress to point out that one does not have to have relativistic velocity to obtain relativistic effects.

One can use the common electrostatic scalar potential to drive the situation relativistic. On this slide we show just one of several references in the standard literature that address this fact.

Let's understand what we are saying.

Anything you get from a relativistic situation, you can get directly by cleverly applying electrostatic scalar potential.

You can get a change in the passage through time, you can get energy changes, mass changes, inertial resistance changes, etc.

You can bend, warp, and twist spacetime like a pretzel.

If you "wave" the scalar potential by simply varying it, you can create pure time waves. You can also produce pure inertial field waves, pure gravitational waves, etc.

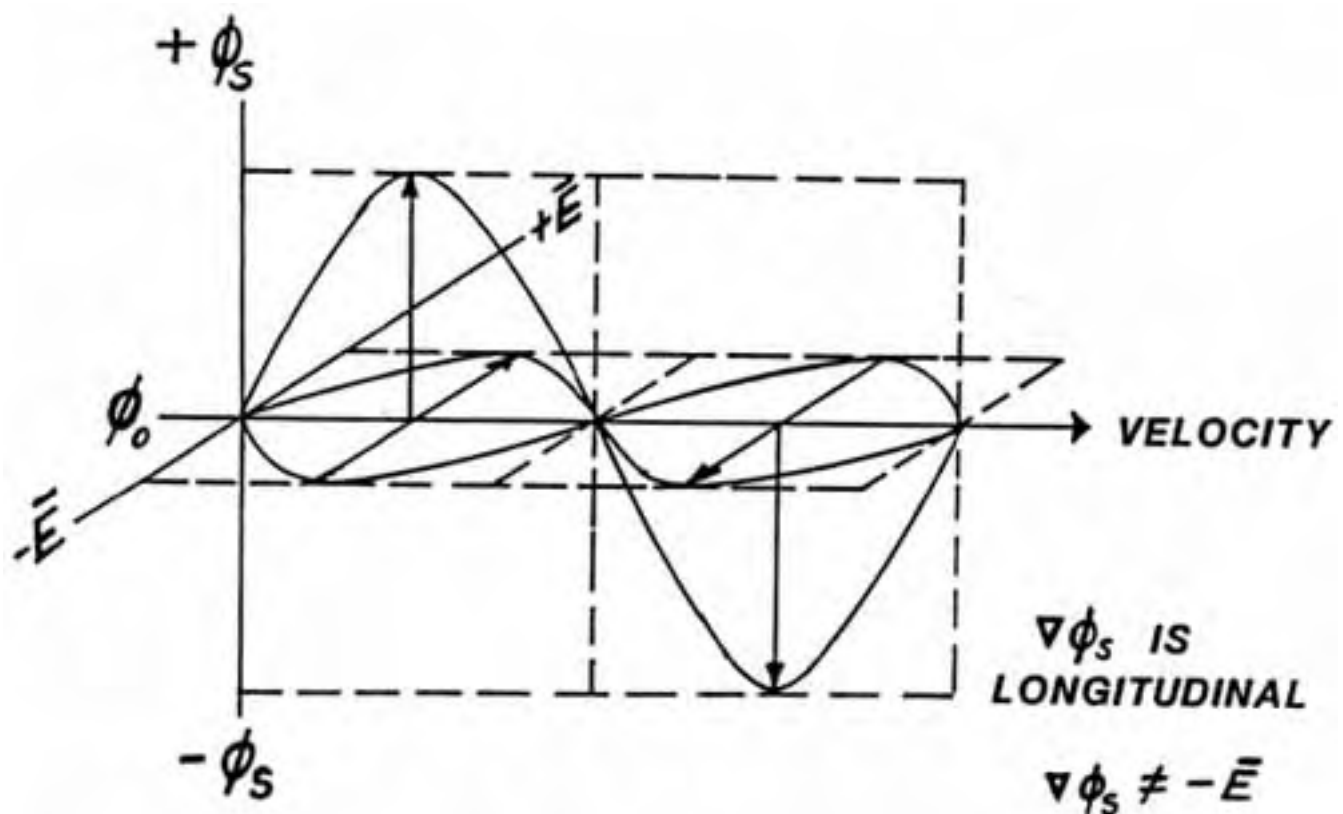
The ability to engineer the curving of spacetime allows the direct ability to engineer physical reality itself.

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SLIDE 22.

## SCALAR STRESS WAVE [O-WAVE] [TESLA WAVE]



On this slide we now show a simple way to make a scalar, zero-vector wave -- the kind of wave originally discovered by Nikola Tesla.

It's simple. We just believe that a sum-zero vector substructure makes a scalar quantity, and we MAKE some scalars that way.

We also understand that a zero-gradient of a scalar is a zero vector, so that the scalar itself may be taken to be a zero vector.

The simplest explanation of this wave is as follows:

First, in physics we have two competing, mutually exclusive theories as to the nature of

electromagnetic energy: the wave theory and the particle theory. Physicists argued for decades over these theories, for some experiments support one and some support the other. They never solved the problem; they just agreed to quit arguing. They formulated the "duality" principle to allow the saving of face to both sides.

Briefly, the duality principle implies that, whatever the nature of electromagnetic energy is before an interaction, in the interaction you can get it to act as a wave or as a particle. In other words, AS IT EXISTS, BEFORE THE INTERACTION, it is implicitly both particle and wave, joined together in some fashion, without being explicitly either one.

With the fourth law of logic, this becomes perfectly clear. With three-law Aristotlean logic, the problem is unresolvable.

Let us use this idea of "explicit duality without implicit duality" to analyze the wave shown on the slide.

First, from a wave aspect, the E-fields and the B-fields of the two waves do superpose and vectorially add. Since the waves are 180 degrees out of phase, the exterior resultant wave has a zero electric field and a zero magnetic field. Therefore it is a "zero-vector" wave, or "scalar" wave. It's a wave of pure stress in spacetime.

However, this scalar wave has a precisely determined substructure, consisting of two ordinary sine waves, each of which comprises an ordinary E-H vector EM wave.

Now we apply the photon consideration (remember, before we interact with the wave, it must implicitly possess BOTH wave and particle natures combined, and we have so far only examined the implication of the wave nature.

The theory of photons' states that they are monocular critters. Photons pass right through other photons without interaction, in a linear situation. Therefore they can coexist without interaction, which is what we show here.

One photon, by the way, is one wavelength .

The photon theory requires that both substructure waves continue to exist as independent photons. Therefore we are assured that our substructure is intact.

However, notice that the totality of the two

waves stresses spacetime. In other words, we have twice the stress on spacetime now as we would have from either wave separately.

This wave is therefore just a pure stress wave in spacetime itself.

This thing oscillates time, oscillates the relativity of the situation, and can affect energy, time flow rate, inertia, gravity, etc. aspects of an absorbing system.

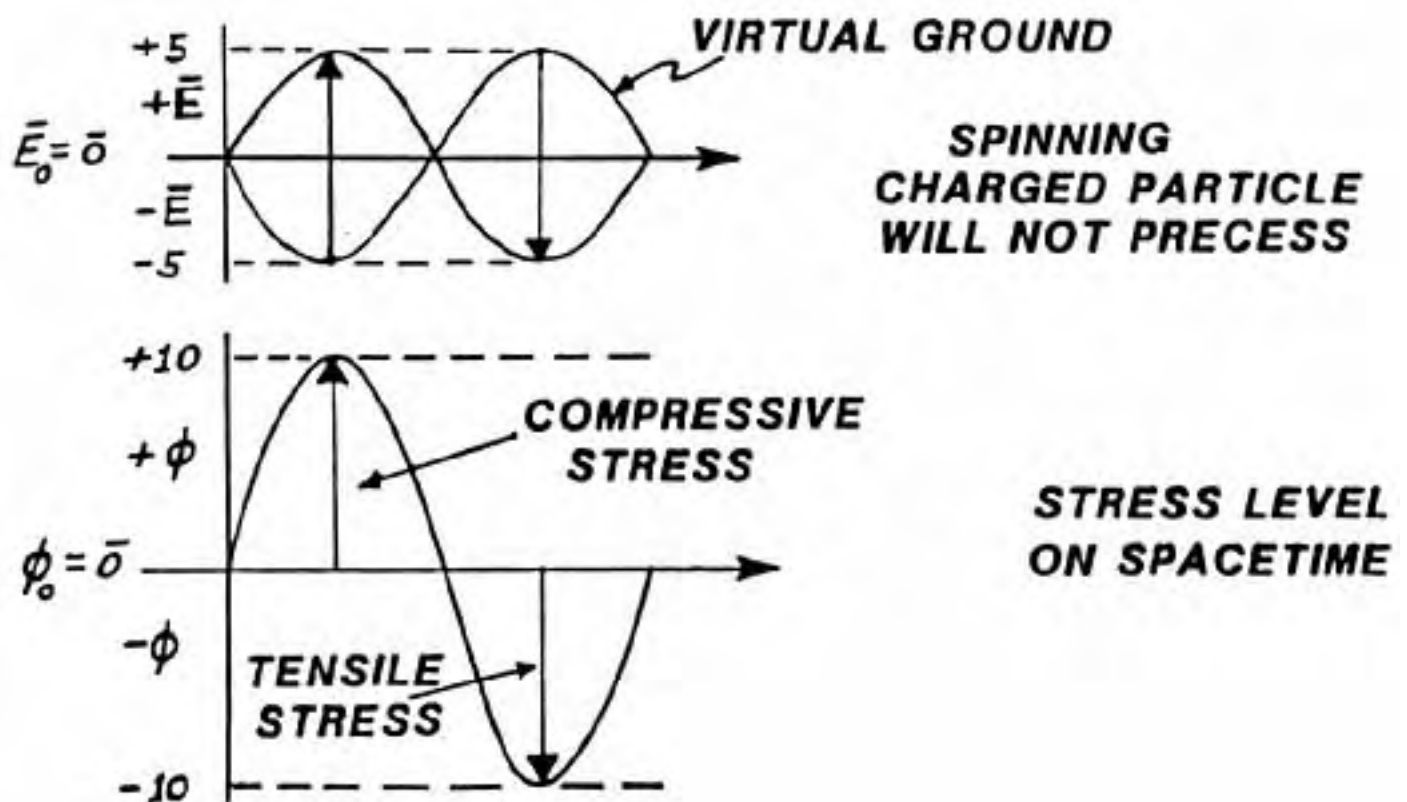
Note that we have a rhythmic oscillation in  $\phi$  ( $\emptyset$ ), and we have a longitudinal stress wave, very similar to a sound wave. The MEDIUM for this wave is the virtual particle flux that identically comprises vacuum spacetime itself.

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SLIDE 23.

## SCALAR Ö-WAVE PRODUCTION



On this slide we show how to regard the magnitude of the stress, by using one wave envelope as "virtual ground." In the top diagram, the original E-field stress of each wave has a magnitude of 5, and the composite stress wave now has a magnitude of 10, in whatever units we choose to express them.

We show in the bottom diagram that during one half cycle we have compressive stress in the virtual particle vacuum flux, and during the second half cycle we have tensile stress.

This shows the wave is like a sound wave in the gaseous molecules of the air.

However, this wave has one difference. It also



oscillates time, and thus has at least one additional degree of freedom, compared to ordinary EM waves.

In fact, this wave can be made n-dimensional and hyperspatial.

As a first order approximation, we can treat such a wave in

a spatial fashion, if the wave is not too great in magnitude and the relativistic oscillation of time and inertia is not too large.

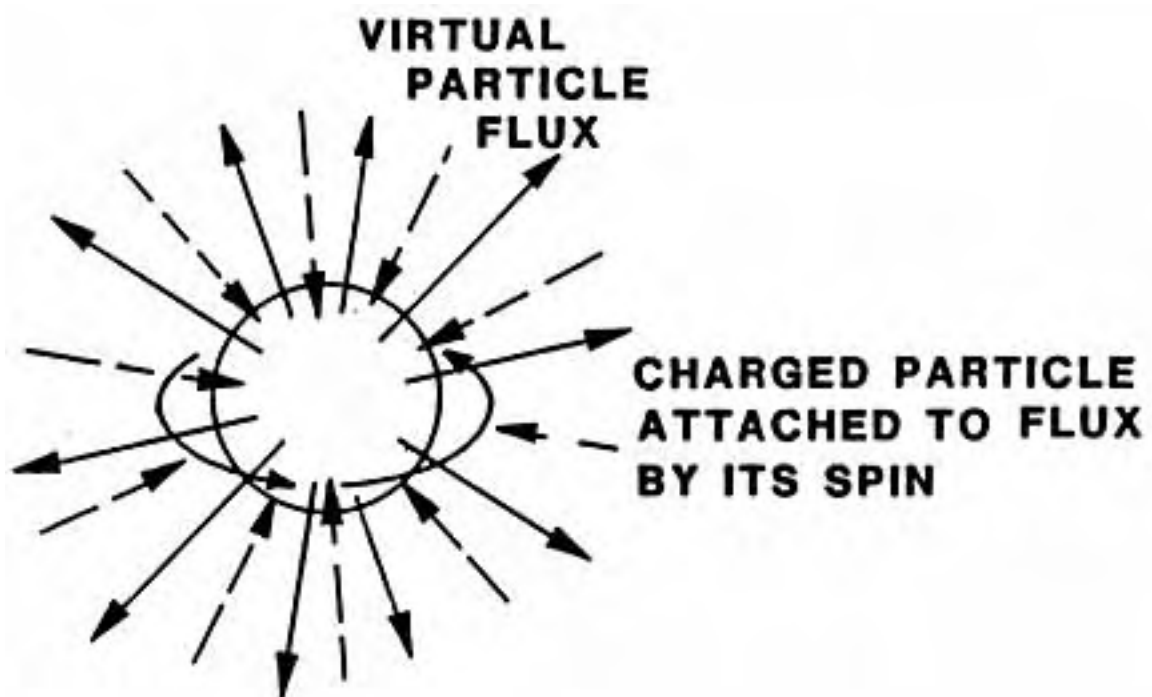
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SLIDE 24.

### **A SIMPLIFIED CHARGED PARTICLE**

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**(THINK OF THE FLUX IN AND OUT, EXCEPT GRADIENTS ARE SPIRAL-LIKE, DUE TO PARTICLE'S SPIN)**

We now digress slightly to pick up some more concepts.

On this slide, we show a simplified physical model of a charged particle. According to present particle physics, we model it as an observable, spinning bare mass in the middle, connected to a spray of virtual particles on and off the mass in all directions.

It is the spin of the mass that "attaches" the spray of virtual particles to and from itself.

Note that, because of the spin, the gradient lines of flux will actually be spiral or vortex in nature.

Also note that, when EM theory was founded, no one knew that an electron was spinning. Electron spin was therefore omitted from the foundations of present

electromagnetic theory, and compensated for later by strictly ad hoc measures.

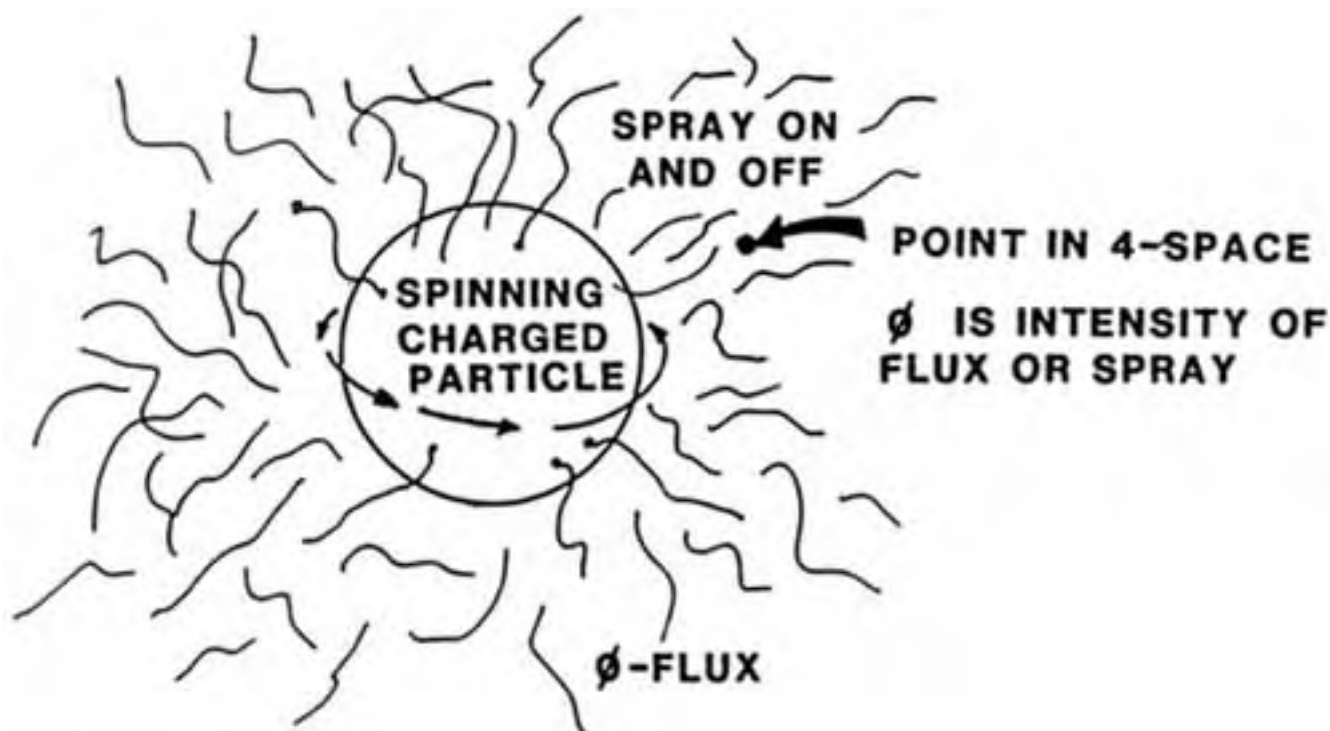
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SLIDE 25.

### **A CHARGED PARTICLE IS A SPECIAL KIND OF "SPRAY NOZZLE"**

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**(SPRAY IS THROUGH 4 DIMENSIONS, NOT JUST 3)**

Here we show a very important concept, and a very important fact of nature.

A charged particle may be idealized as a special kind of spray nozzle.

The 3-dimensional particle of mass is spraying out virtual particle fluid, and sucking in virtual particle fluid, in four or more dimensions.

We never have to furnish or replenish the spray. Nature provides that. And it's inexhaustible. It comes from the entire virtual particle flux vacuum of the universe. It's already connected firmly to matter, by its connection to the spinning charged particle of mass.

I repeat and strongly stress: This tremendous, continuous spray of virtual particles is absolutely free,

and absolutely furnished by the universe.

We don't have to create the basic pumps for the fluid. We just move the spray nozzles around, by moving the spinning charged masses around.

We never furnish any ultimate energy to or in our present EM circuits. We just pump around the spray nozzles, gating the spray furnished by the universe.

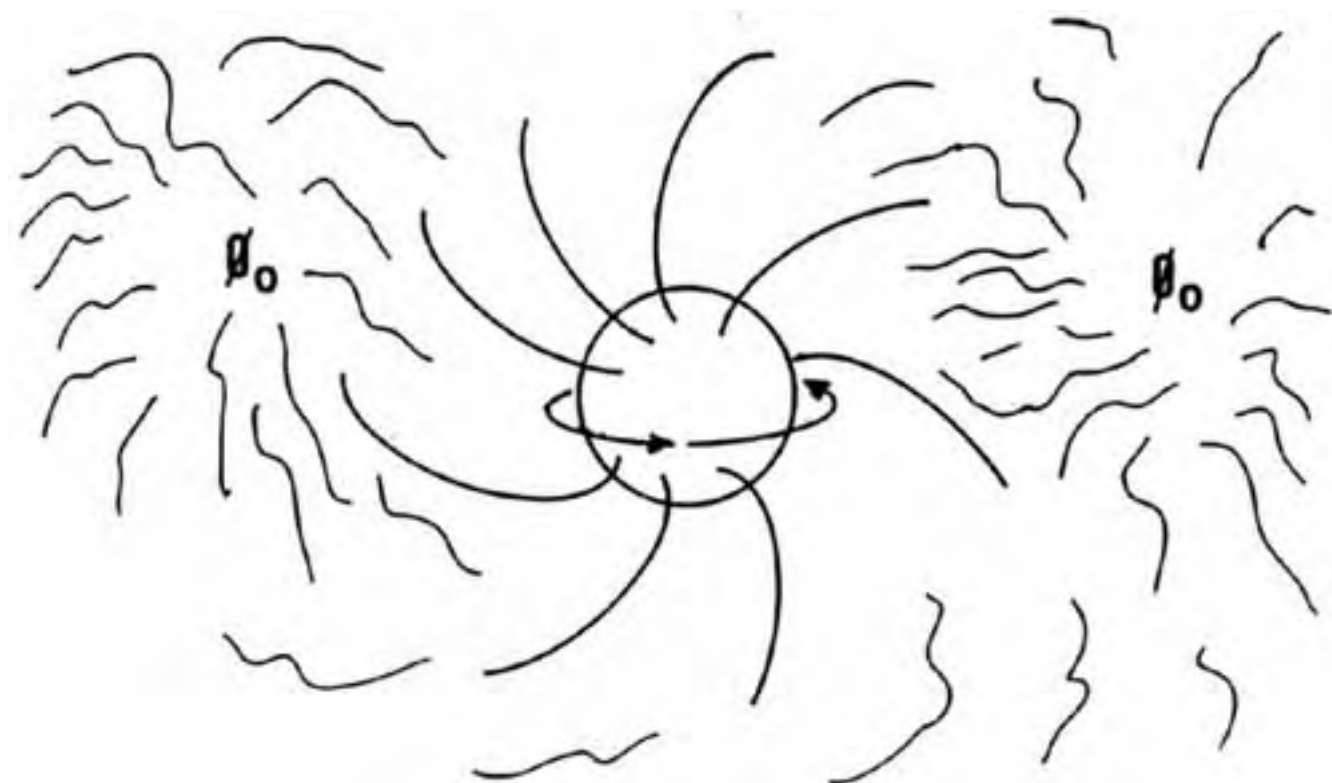
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SLIDE 26.

### **AN OBSERVABLE CHARGED PARTICLE IS DIRECTLY CONNECTED TO VIRTUAL PARTICLE FLUX VACUUM**

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On this slide we accent that our 3-dimensional particle of mass is directly connected by its spin to the vacuum ether itself. To the virtual particle flux that identically IS the vacuum spacetime.

Interestingly, relativity states that the mass itself is nothing but a "kink" or curvature in spacetime .

The fact that the surface of the particle is spinning at right angles to the virtual particle vacuum flux "drags" part of the flux along with it, spiraling it, and certainly "kinking" or "bending" the vacuum flux .

That's the MECHANISM for the bending of spacetime. And that's what MAKES the particle of mass in the first place, and reduces its dimensionality to three.

Also note that the vacuum IS  $\phi$ -sub-zero, and that is never a zero value. This is contrary to present EM theory, which erroneously assumes  $\phi$ -sub-zero -- the charge of vacuum -- to be zero or non-existent.

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SLIDE 27.

## **SPIN COUPLES VACUUM TO PARTICLE**

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- **SPHERICAL ROTATION IS THE KEY**
- **A PARTICLE CAN BE MODELED AS  
A SPHERICALLY ROTATING VORTEX  
OF SPACETIME**
- **ITS MASS IS DUE TO ITS SPIN**
- **THE SPINNING OBJECT IS  
CONTINUALLY CONNECTED  
TO ITS ENVIRONMENT**
- **VERY HIGH VALUES OF  
ELECTROSTATIC POTENTIAL  
CAN INDUCE RELATIVISTIC  
CONDITIONS**
  - **CHANGE RATE OF FLOW  
OF TIME**
  - **EVEN THOUGH VELOCITY  
IS NONRELATIVISTIC**

E.P.BATTEY-PRATT AND T.J.RACEY  
"GEOMETRIC MODEL FOR FUNDAMENTAL  
PARTICLES,"  
INTL. J. OF PHYS. 19, No. 6, 437-475, 1980



In fact, the bits and pieces of many of the new concepts are strewn all through the scientific literature. Here we show one example, establishing a good model that spin of a particle couples the particle to the vacuum .

This paper is by E.P. Battey-Pratt and T.J. Racey, and was . published in the International Journal of Physics in 1980.

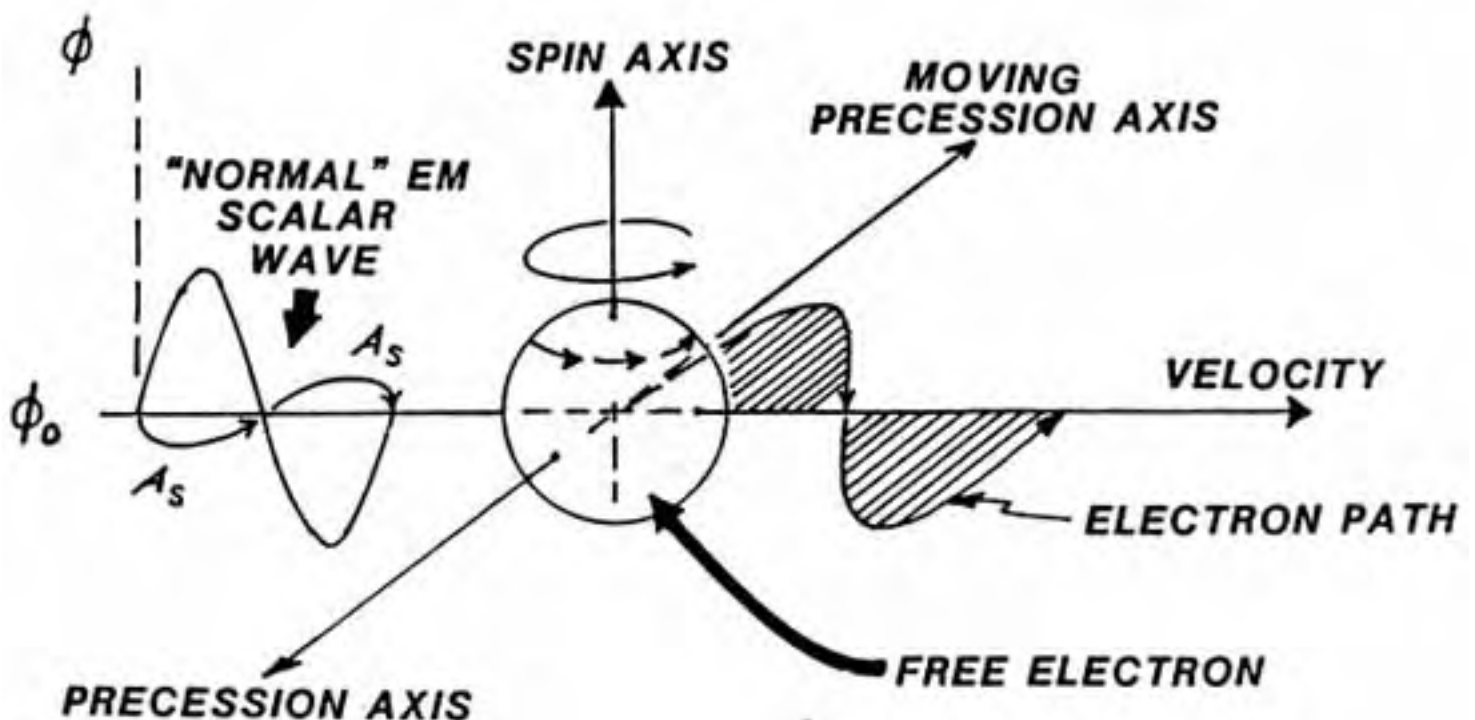
Note again that very high values of electrostatic potential can induce relativistic conditions, even though relativistic velocity is not present.

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SLIDE 28.

## ELECTRON PRECESSION (SIMPLIFIED)



On this slide I show the effects of precession of an electron when it encounters a longitudinal scalar wave that contains "spin vortex holes" for the electrons to fall into and mesh its spin with.

The basic idea here -- that electron precession accounts for the Hertzian waves in the electron gas in a transmitting antenna and in a receiving antenna, came from my close colleague and friend, Frank Golden, and I am most happy to give him full credit for this important insight.

As we have previously stated, transverse (force) waves cannot exist in vacuum in the absence of mass. Hertz waves therefore cannot exist in vacuum, just as Tesla stated.

Yet we know that Hertz waves exist in the electron gas in

our transmitting antennas and in the electron gas in our receiving antennas. How then do we get Hertz waves here, if only longitudinal waves can exist in the vacuum in between?

Electron precession is the key.

We never measure what's happening in vacuum with our instruments. Instead, almost always we measure what is happening to and in the electron gas in our antenna or probe and feeding current to the instrument.

Here we show a "normal" EM vacuum wave -- which is a longitudinal wave containing spin vortexes from the electrons that generated it -- approaching and striking a spinning charged electron. As the peak and trough of the wave passes, it is as if we had a force pressing against the spinning electron, first along the line of wave travel, and then antiparallel to the wave travel. (*that is, "explaining" it in present concepts.*)

The electron acts as a little gyroscope, and precesses laterally, first in one direction and then the other.

Therefore the wave recovered in the electron gas in our receiving antenna or instrument probe is a transverse Hertzian matter wave.

Hertz waves are always matter vector waves.

Vacuum EM waves are always nonmaterial longitudinal scalar waves.

Longitudinal scalar waves in vacuum normally contain many spinning vortex "holes" of flux, created from the spinning electrons which launched the wave and stayed behind in the transmitting antenna. This kind of longitudinal wave is directly detectable by a normal free electron charged gas in a receiving antenna or probe. It also directly interacts with free electrons in a conducting metal shield, and so is shielded by Faraday cages.

On the other hand, our zero-vector longitudinal wave, made by opposing waves, contains opposing spin holes which annihilate or cancel each other.

In the absence of spin holes, the longitudinal wave will not mesh with spinning electrons in a conductor, and so it is not detectable in the normal fashion. It also does not interact with free electrons in a conducting metal shield, so it readily penetrates Faraday cages.

An easy way to see that electrons do not interact with that substructured longitudinal zero-vector wave is to visualize both substructure component waves interacting on the electron simultaneously, pushing in opposite directions equally. In that case the electron tries to precess in both directions, equally, and so it does not precess in either direction. Therefore it does not "detect" the passing wave.

The wave without "golf ball holes", however, is detectable by any circuit having high nonlinearity actions occurring in it. Such highly nonlinear dynamic areas act to provide a phase shifting between the composite substructure waves. This phase shift results in violation of the sum-zero condition, producing a "normal" EM wave which deposits energy in the out-of-phase area.

From the spin vortex "golf ball hole" concept, the out-of-phase condition means that now we have an alternating preponderance of spin holes, spinning first in one direction and then in the other. Thus the electrons in the nonlinear, phase shift area are hooked and oscillated (precessed) to and fro, producing energy.

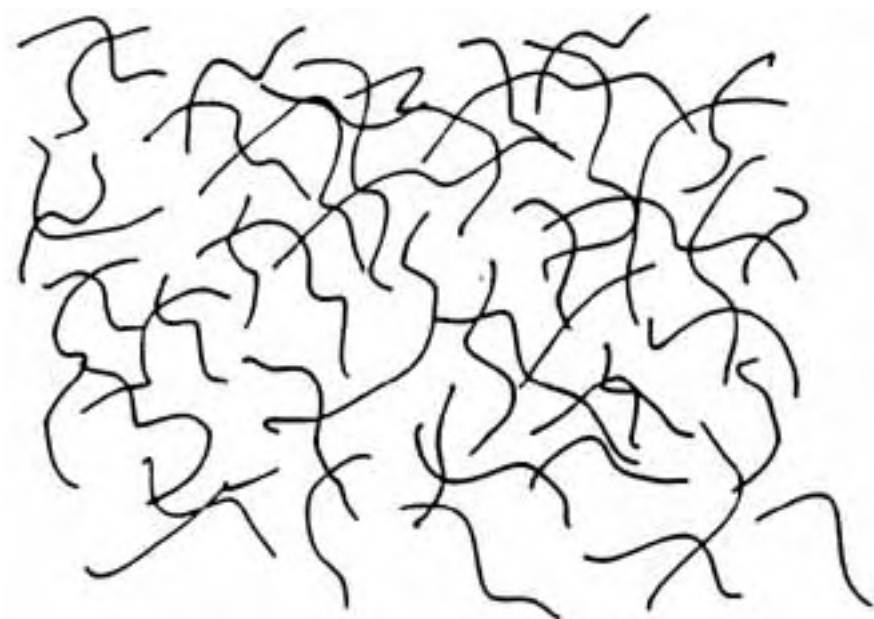
Solid state, highly doped transistors are particularly vulnerable to this effect, as are gas discharge tubes, spark and cascade ion discharges, plasmas, etc.

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## [The Tom Bearden Website](#)

SLIDE 29.

### **VACUUM/SPACETIME IS PURE VIRTUAL PARTICLE FLUX ( $\emptyset_0$ )**



#### **VACUUM IS IDENTICAL TO:**

- **VIRTUAL PARTICLE FLUX**
- **SPACETIME**
- **ANENERGY**
- **$\emptyset_0$**
- **MASSLESS CHARGE**

#### **VACUUM IS:**

- **MADE OF UNQUANTIZED ACTION**
- **WITHOUT DEFINITE LENGTH INTERVALS**
- **WITHOUT DEFINITE TIME INTERVALS**
- **N-DIMENSIONAL (UNFIXED)**

We pause here to again summarize some important things we now know about vacuum.

Vacuum IS IDENTICAL TO virtual particle flux, spacetime, anenergy,  $\Phi$ -subzero, massless charge, unquantized action, and infolded energy, momentum, length, time, power, velocity, acceleration, etc.

Vacuum is made of unquantized action, dimensionally.

It is without definite length or time, as Einstein stated.

It is n-dimensional, where n is always four or

greater.

It is not an emptiness filled with things. Rather, it is identically a plenum filled with things which are totally unseparated, unfixed, and undetermined.

From vacuum: mass, energy, time, frames, and all the rest of physical reality are dynamically made.

Vacuum is the ether. The ether has never been eliminated from physics. Ether just has become much more subtle, and physicists have used other names for it.

[Next Slide](#)

## VACUUM IS:

---

- **SPACETIME ( $L^nT$ , WHERE  $n \geq 3$ )**
- **CHARGE (MASSLESS)**
- **ELECTROSTATIC SCALAR POTENTIAL**  
 $\emptyset_0 \neq 0$
- **ERROR IN PRESENT THEORY**
- **BROKEN BITS OF ENERGY**  
**(SUBQUANTAL)**
- **PURE VIRTUAL PARTICLE FLUX**
- **O-WAVE FLUX**
- **MULTILEVEL, STRUCTURED,**  
**PATTERNED**
- **A VIRTUAL PLENUM**
- **AN OBSERVABLE EMPTINESS**

Again, we list some of the things that vacuum identically is.

It is spacetime, massless charge, electrostatic scalar potential, broken bits (subquantal) of energy, pure virtual particle flux, zero-vector wave flux, multilevel, structured, patterned, a virtual plenum, and an observable emptiness.

It is all things and contains all things in potential state.

It is not, in that it is not observable. But from it comes all observables.

It is both ordered and disordered, simultaneously.

It involves four-law logic, not just three-law  
Aristotelean logic.

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## GRADIENT OF ELECTROSTATIC POTENTIAL

---

### IN VACUUM

$$\nabla\phi \neq \ddot{\mathbf{E}}$$

### ON AND OF A MOVING CHARGED PARTICLE

$$\nabla\phi = \ddot{\mathbf{E}}$$

Again I accent that, in vacuum in the absence of a charged spinning particle of observable mass,  $\nabla\phi$  does not yield an  $\ddot{\mathbf{E}}$ -field, and the conventional equations of EM are wrong in that respect.

In the presence of a spinning charged particle, in a  $\nabla\phi$  which contains electron-vortex-holes to mesh with, the charged particle attaches itself to the moving  $\nabla\phi$  flux gradient, moving itself with the river. This produces an  $\ddot{\mathbf{E}}$  field. The  $\ddot{\mathbf{E}}$ -field CONSISTS OF the smeared electron, it does not CAUSE THE MOVEMENT of the electron. It is an effect, not a cause. The conventional equation for  $\nabla\phi$  equals  $\mathbf{E}$  is correct for matter waves in electron gases; it is not correct in vacuum itself.

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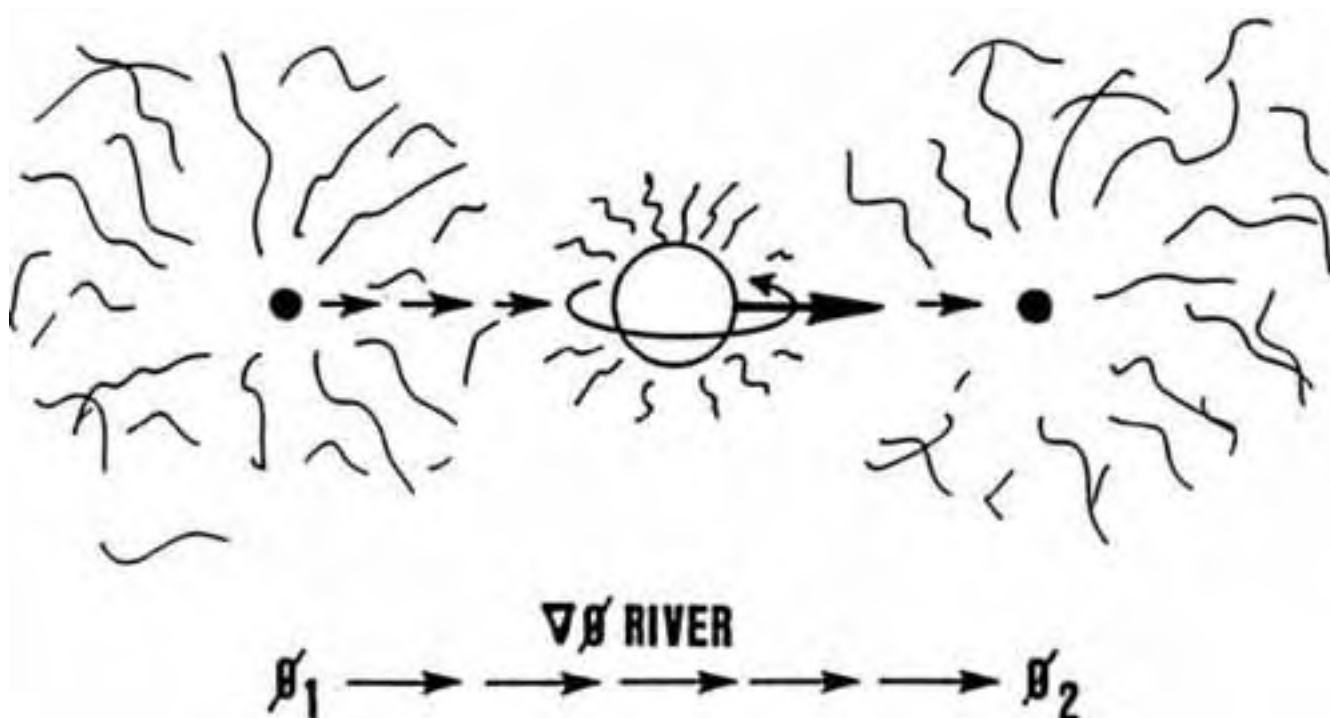
## [The Tom Bearden Website](#)

SLIDE 32.

### IN A $\nabla\phi$ , A CHARGED PARTICLE MOVES ITSELF

---

**$\nabla\phi > 0$  IMPLIES A MOVING RIVER, AND THE CHARGED PARTICLE IS "HOOKED TO" THE RIVER**



We show clearly on this slide that a spinning charged particle, when it hooks to a spin-hole in a del-phi river, MOVES ITSELF.

Note that a del-phi implies a "pressure difference" in phi-flux between two points. Therefore there is a moving river -- a gradient -- of phi-dot, moving from the higher pressure to the lower.

If a charged particle is attached to this moving river, it flows along with the river. It is just like putting a boat into a moving stream of water. If the boat "latches" to the moving water, it moves with the river.

Electron spin and spin vortexes in the del-phi mesh, to accomplish the "hooking" or "latching."

Once hooked into a moving river, the electron moves itself. One does not have to furnish work to move it.

If the river is accelerating, the electron will accelerate itself.

By cleverly gating such rivers into and onto sources of free electrons, one can directly produce free energy.

The extra energy comes from converting anenergy (massless charge, vacuum flux) to energy of a moving mass.

[Next Slide](#)

SLIDE 33.

## **ELECTROMAGNETIC WAVES IN ELECTRON GAS IN A CONDUCTOR**

---

- **VECTOR WAVES**
- **CONTAIN E, B FIELDS**
- **GENERATED BY SPIN COUPLING  
OF ELECTRONS  
WITH SCALAR WAVE "SPIN-  
HOLES"**
- **WAVES OF FORCE**
- **HERTZIAN WAVES**
- **TRANSVERSE WAVES**
- **WAVES OF ELECTRON  
PRECESSION**

Here we pause to summarize the characteristics of electromagnetic waves in the electron gas of a conductor.

First, these are vector EM waves in the accepted sense.

They contain E and B fields.

They are generated by spin coupling of electrons with spin-holes in a scalar wave  $\Delta\phi$  river. The electrons move themselves under that condition, producing work and forces.

They are waves of force or force field variations.

They are Hertzian waves.

They are transverse oscillatory, not longitudinal.

They are matter waves.

They are waves of electron precession.

[Next Slide](#)

## **ELECTROMAGNETIC WAVES IN VACUUM**

---

- **SCALAR LONGITUDINAL WAVES**
- **VECTOR ZERO [Ö] WAVES**
- **WITHOUT  $\vec{E}$ ,  $\vec{B}$  FIELDS**
- **INTERNALLY STRUCTURED**
- **PATTERNED**
- **MAY CONTAIN ELECTRON "SPIN-HOLES"**

Here we summarize the characteristics of electromagnetic waves in vacuum.

They are scalar longitudinal waves of alternate compression and rarefaction of the vacuum virtual particle flux.

That is, they are waves of electrostatic potential.

They are zero-vector waves.

They are internally structured and patterned.

They usually contain electron "spin holes" unless made in a fashion so as to make opposing spin holes that cancel each other.

Since they are pure  $\phi$ -waves, they need not be limited in velocity to the speed of light.

They are hyperspatial waves.

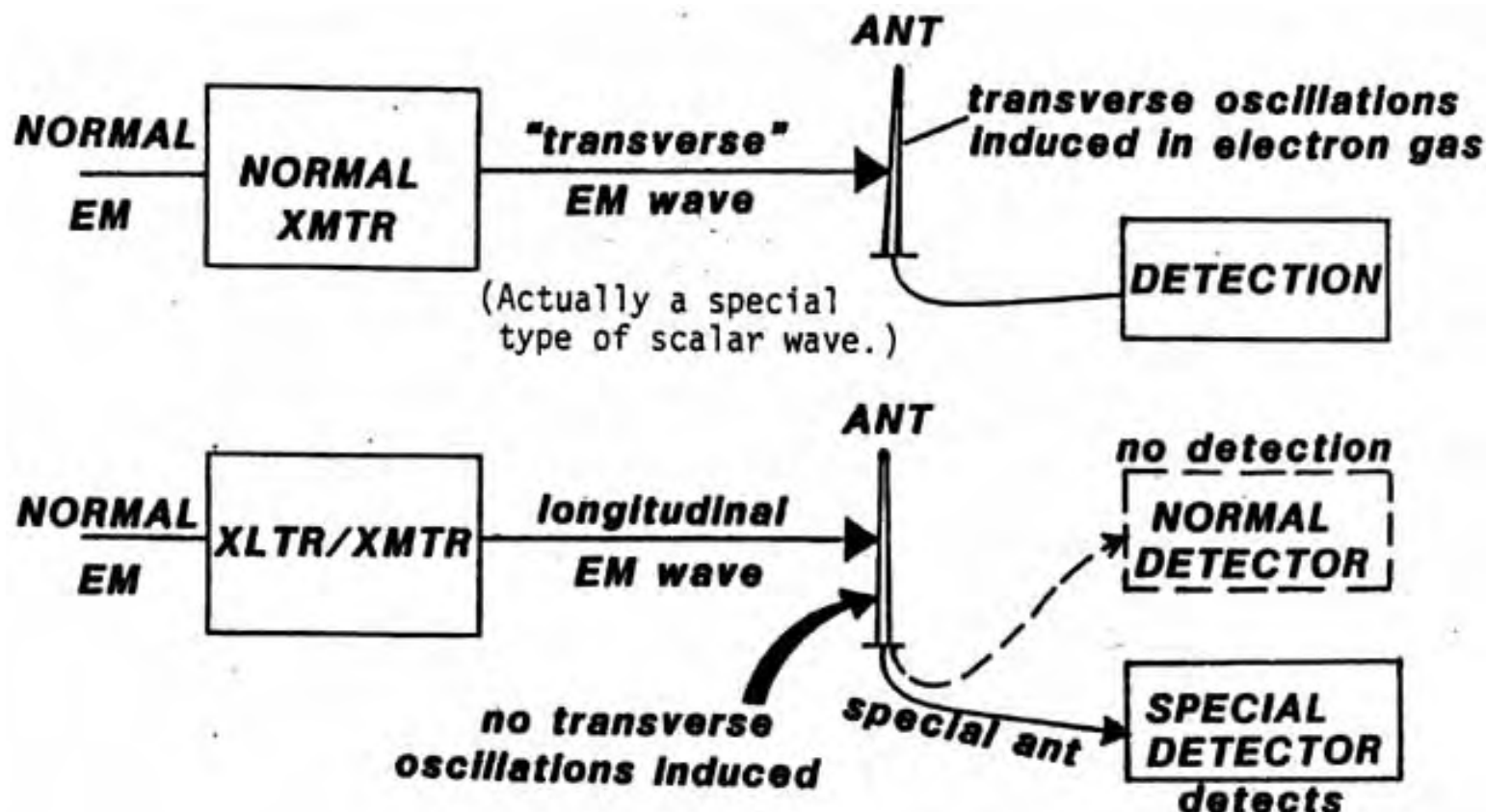
They are waves in virtual state itself.

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# [The Tom Bearden Website](http://www.chenierye.org/books/part4/s35.htm)

SLIDE 35.

## DETECTION OF TRANSVERSE AND LONGITUDINAL WAVES



In the top drawing on this slide, we show a normal transmitter putting out a normal EM wave, which is received in a normal antenna/receiver. What we call a "transverse" wave rigorously exists only in the electron gas in the transmitting antenna and in the electron gas in the receiving antenna. Specifically, a longitudinal wave exists in the vacuum in between the two antennas. However, due to the method of production, the longitudinal wave contains spin-holes for electrons, so the electrons in the receiving antenna readily couple with the wave by falling into and meshing their spins with the spins of the spin-vortex holes. Electron precession produces electron gas waves that are transverse oscillatory, hence Hertzian waves in nature.

In the bottom drawing, we show a translator/



transmitter. In other words, we oppose ordinary EM waves in a sum-zero substructure, deliberately producing longitudinal EM waves in vacuum with the spin-hole vortexes canceling each other. This type of wave does not "hook" spinning electrons in the normal receiving antenna, and thus it is not detected. The normal antenna/receiver system never sees it at all.

However, by means of a special antenna which generates nonlinear phase shifts in the composite substructure waves, "hooking" holes are restored in an oscillatory nature. Electrons then hook with this output and detect the wave.

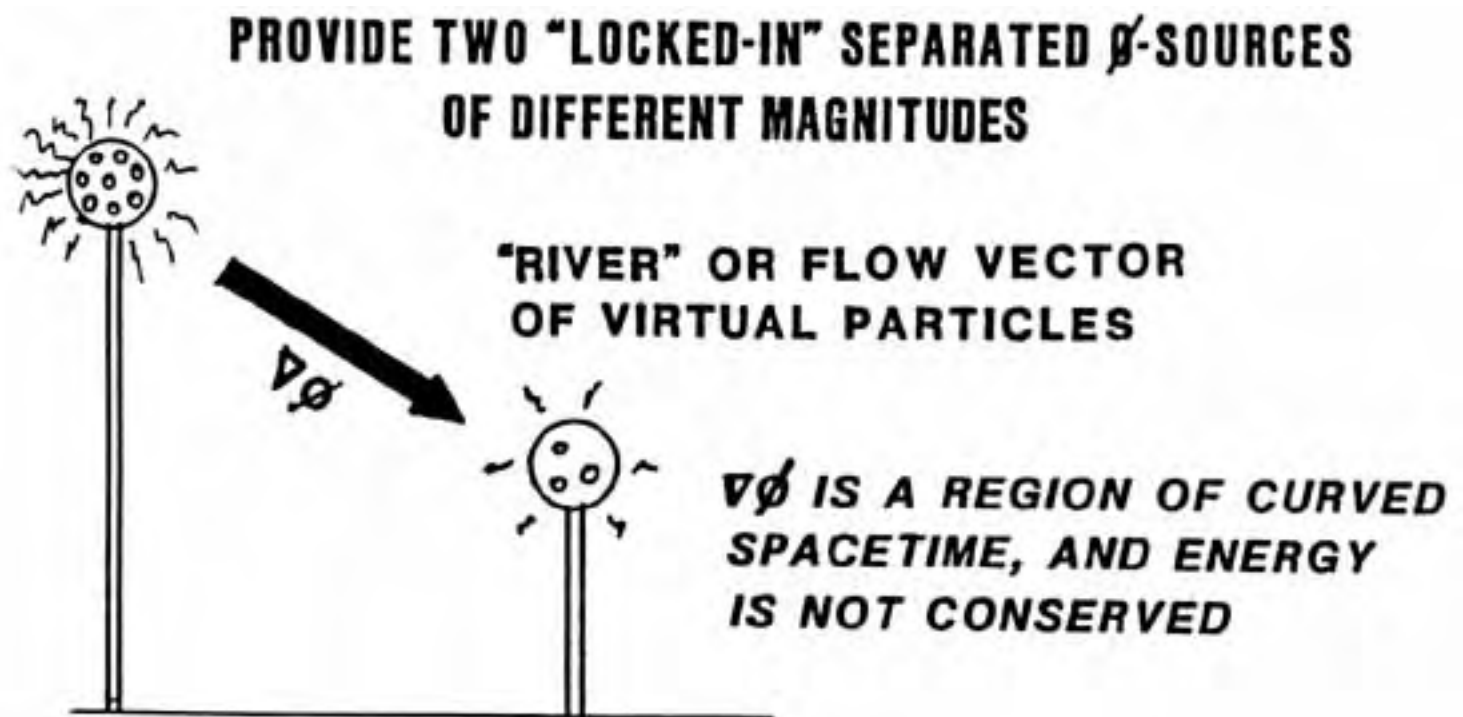
Note that it requires a two-stage detector, operated in an interferometer fashion, to detect this pure scalar wave.

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## [The Tom Bearden Website](#)

SLIDE 36.

### CREATING A "RIVER" OF ANENERGY



**IN VACUUM, THIS IS NOT YET A  
VOLTAGE DROP (NO MASS  
FLOW),  
NOR IS THERE AN  $\vec{E}$ -FIELD**

Now if we wish to get free energy, we are going to have to provide a continuous anenergy river, and a means of tapping it to produce mass movement.

This slide shows one easy way to make an anenergy river.

We simply pump some electrons (spray nozzles) onto an elevated charged ball, and we LEAVE them there. A second ball is connected to ground. A higher  $\phi$  -- that is, a denser spray -- is now in the vicinity of the elevated ball on the left. A lower  $\phi$  -- that is, a less dense spray -- is in the vicinity of the lower ball on the right. Between the two balls, now, there is a

gradient in  $\phi$ , and a virtual flux flowing from the "higher virtual pressure" to the "lower virtual pressure."

This  $\nabla\phi$  river does NOT constitute an  $\vec{E}$ -field, as we have previously pointed out.

The  $\nabla\phi$  region, however, is definitely a region of curved spacetime. As is well known from general relativity, in such a region energy need not be conserved.

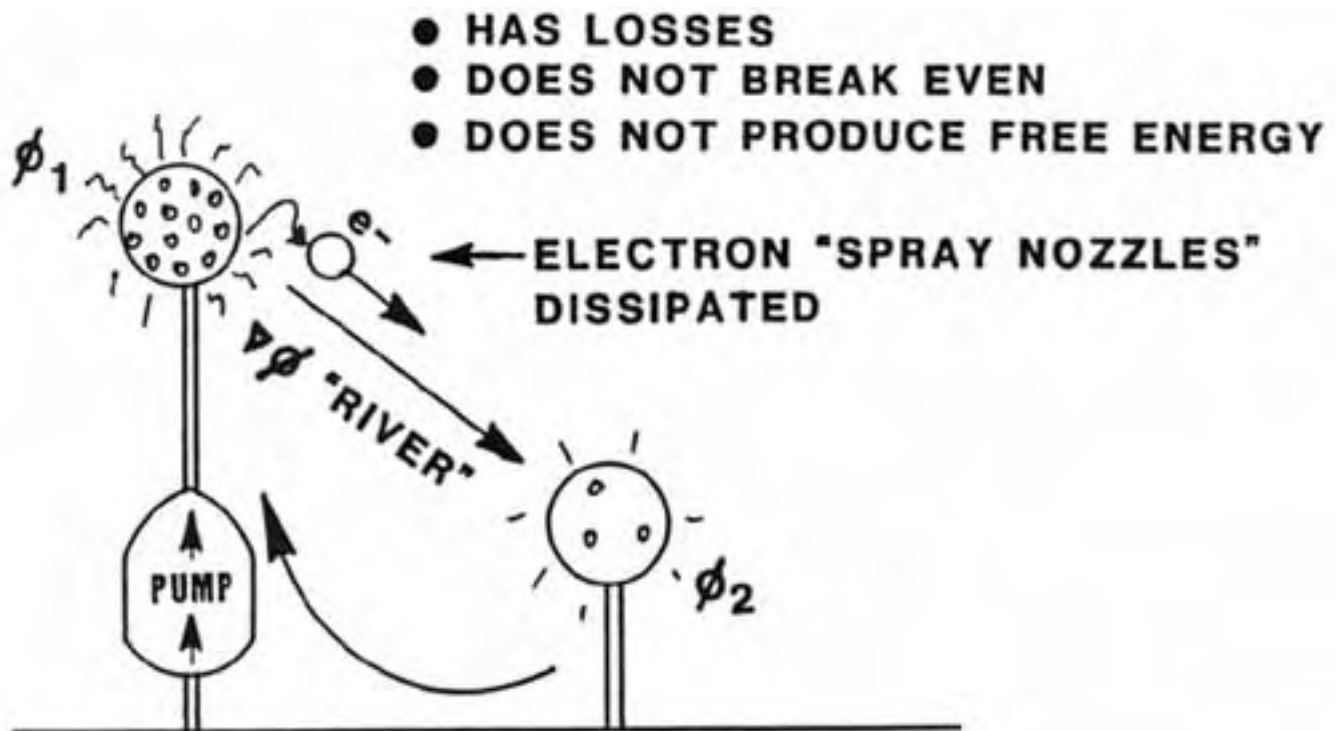
Therefore it is entirely possible -- consistent with ordinary physics -- to violate conservation of energy in this  $\nabla\phi$  river, if one believes general relativity. If one argues adamantly that conservation of energy cannot be violated under any circumstances, then one must throw out general relativity. Also, one must throw out most of particle physics, whose explanations presently involve virtual interactions, each of which violates the conservation of energy.

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## [The Tom Bearden Website](#)

### SLIDE 37

## A 2-WIRE SYSTEM IS CONSERVATIVE



**REPLENISH SPRAY NOZZLES BY PUMPING MORE ELECTRONS. (MOVING ELECTRON MASSES AGAINST A "SPRAY PILEUP" REQUIRES WORK.**

Here we show that, as engineers, we've all been tricked into releasing our virtual rivers so that we would not discover free energy.

While I cannot prove this as yet, I tentatively suspect that J. P. Morgan and Thomas Edison are directly responsible for this occurring. [Tesla utilized a single-wire system](#); we have all been taught to utilize only two-wire systems.

What we in effect do is connect a wire or circuit to our charged ball, allowing our hose nozzles to drain away.

In other words, we first do some work to pump hose nozzles (electrons) into and onto our elevated

reservoir, so we will obtain a denser flux, and a flux river to utilize. Then we release the nozzles themselves, and let THEM move on the flux river, depleting our river. Of course we can get back as much energy as we pumped up there in the first place. But this two-wire system is at best theoretically even. Since real circuits have losses, we can never even quite break even. Thus we have to continue to pump hose nozzles, and let them bleed off to provide energy, in a less-than-100% fashion.

By foolishly releasing our hose nozzles, we guarantee that we will never achieve free energy. And that's nice, because the people who control things, and for their own wealth and power depend on selling us energy at high prices, are guaranteed to stay in power and control.

One is never truly free unless one is energy independent, in a self-contained fashion.

Tesla nearly succeeded in giving us free or very cheap, inexhaustible energy -- and for that reason was quickly and dramatically suppressed.

Only three graduate schools of electrical engineering existed in the U.S. The only one of any real importance was at Columbia University.

Only one or two professors were necessary to "reach" to modify and subtly direct the entire foundations of the emerging electrical theory.

Professors were in general poor, and had no research funds unless some rich industrialist or philanthropist gave them a few dollars.

The setup then was certainly very ripe for Morgan and Edison to stop free energy, and suppress Tesla at the same time. They could have done so by influencing only one -- or at most two -- theoreticians at Columbia.

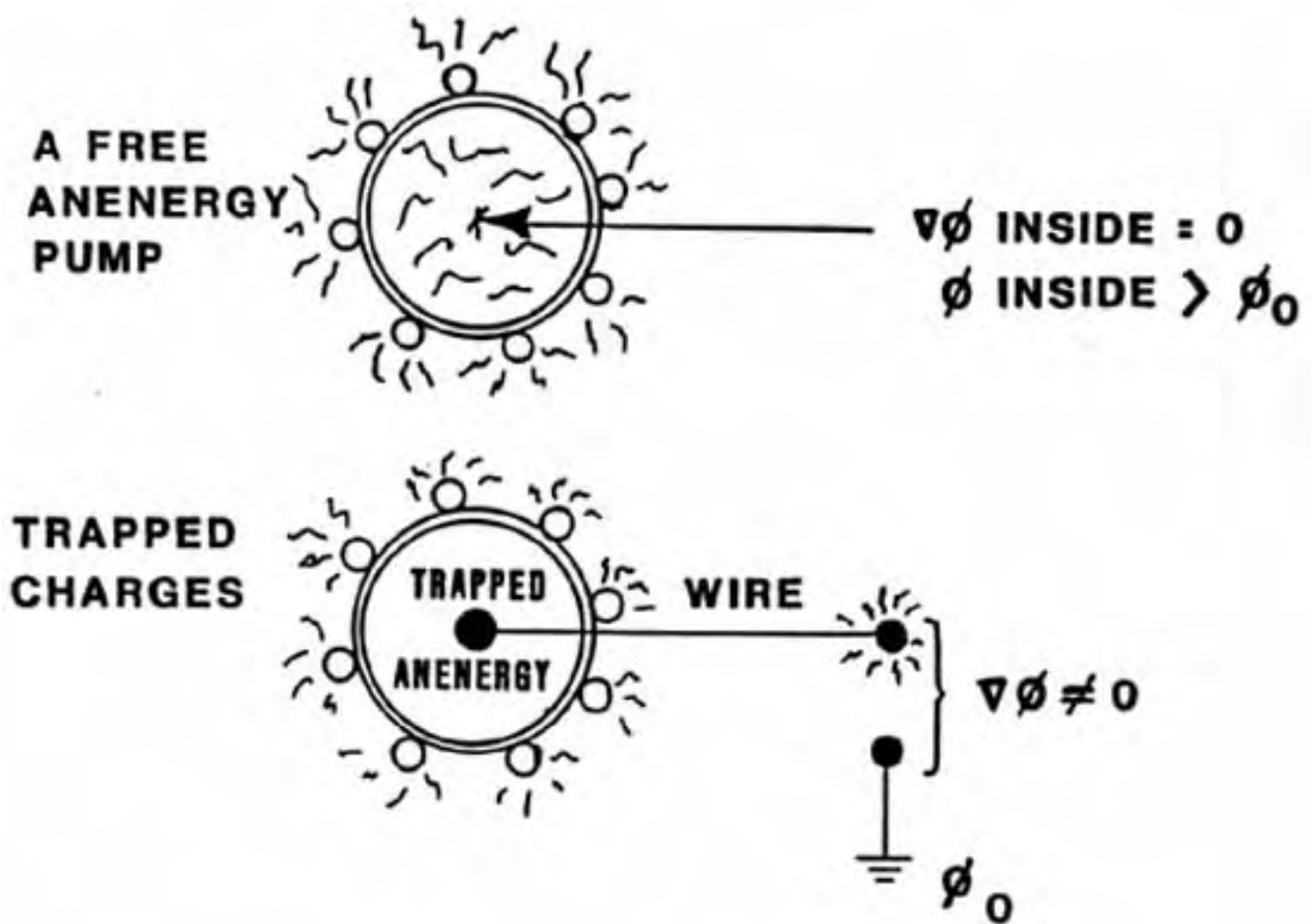
At any rate, the theory was developed in such fashion as to rule out the single wire circuit and the longitudinal wave. Free energy was suppressed, and the financial empires of Morgan and Edison stayed secure.

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[The Tom Bearden Website](http://www.chenierye.org/books/part4/s38.htm)

SLIDE 38.

## A HOLLOW CHARGED SPHERE



Here we show another easy source of a higher vacuum charge, hence an easy source for a free river.

Simply charge up a sphere. As is well known, inside that sphere one has no  $\Delta\phi$ . So one can introduce an electron therein and not produce an  $\vec{E}$ -field .

However, since we've piled up additional spray nozzles, the density of the spray inside the sphere (as well as outside it) is certainly higher.

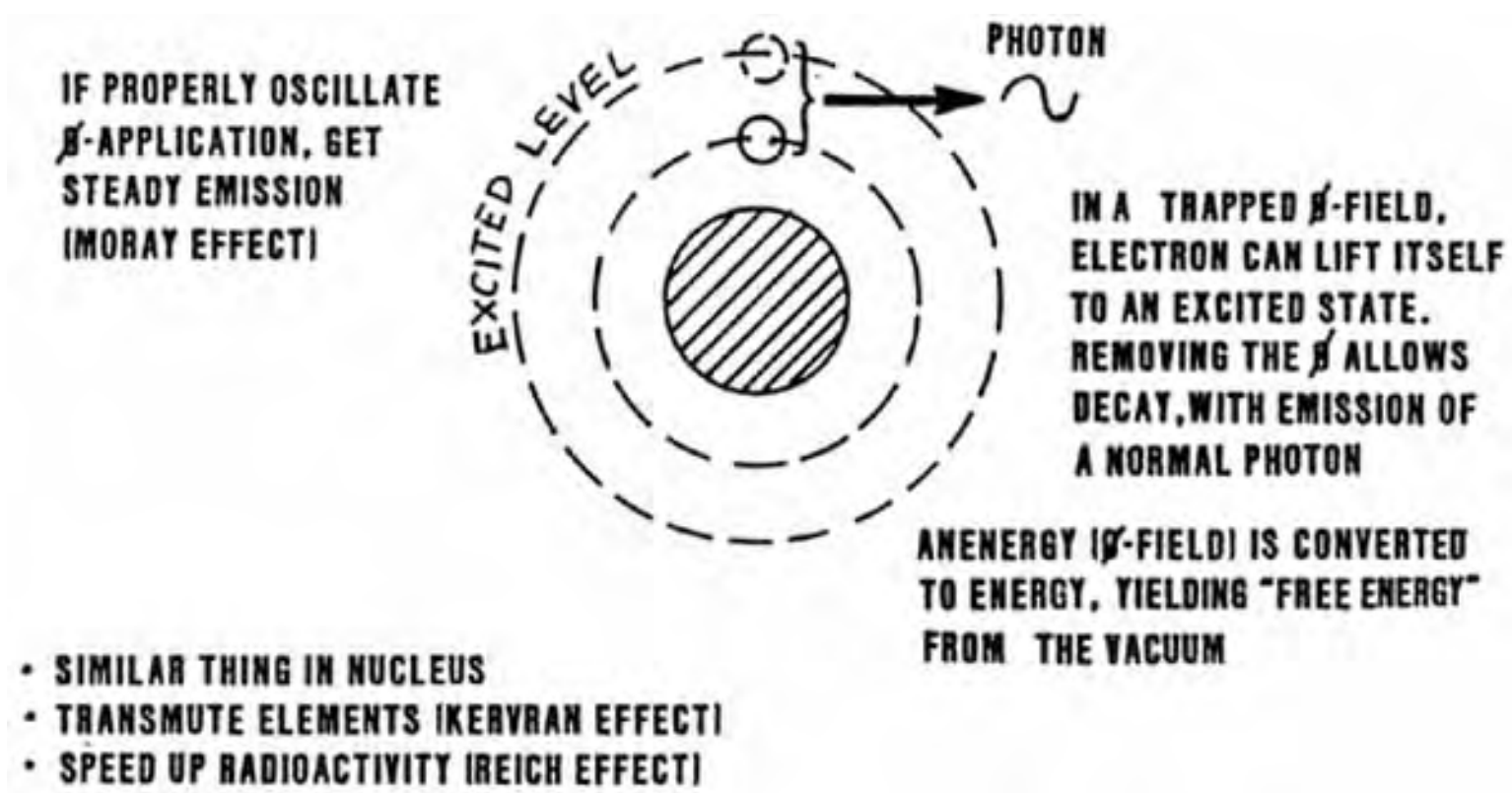
In other words, the inside of the sphere is also a source for an increased  $\Delta\phi$  river. In the bottom drawing, we drill a tiny hole in the sphere, insulate a thin wire running into the inside of the sphere, and run the wire out to a terminal opposing another grounded terminal. Between the two terminals now there must exist a  $\Delta\phi$  river.

And between those terminals there now exists a curvature of spacetime, hence the theoretical possibility to obtain free energy without violation of principles.

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## ONE-WAY GATE VALVE

(ANENERGY TO ENERGY)



Here we show one way to provide a one-way gate valve from a del-phi river to energy released into the outside world.

By providing a properly tuned, oscillating phi wave, one can cause an orbital electron in an atom to raise itself to an excited state. Remember, in a del-phi, an electron that hooks to it raises itself.

We then switch out the phi application, and the excited electron decays in normal fashion, emitting a normal photon of energy.

By phase locking the processes, one produces a steady stream of photons.

By absorbing or directing the photons, one can



produce heat, light, energy beams, etc.

By this means, one produces free energy by gating anenergy into energy.

And if one does not release spray nozzles in the phi-oscillations which feed the mechanism, one has an inexhaustible energy production.

A very similar thing can be done with the excited states of the nucleus. For example, by using a radioactive material with a predisposition to emit some particle -- say an electron -- the nucleus can be made to continually emit the particles WITHOUT ITSELF DECAYING INTO BYPRODUCTS. In other words, an electron is lifted from the Dirac sea of vacuum to instantly replace the electron emitted from the nucleus.

This provides a one-way gate valve from the Dirac sea to the external universe.

Theoretically, these mechanisms are no more mysterious than a hydraulic ram, which raises water higher than the stream that feeds the ram.

In the 20's and 30's, T. Henry Moray successfully built such gating devices for converting vacuum anenergy to external energy.

In the Kervran effect, living systems are able to directly transmute elements, even though they only possess feeble energies, by influencing the virtual particle interactions in the nucleus that furnish its binding energy.

Reich used an adaptation of a [cloudbuster](#) -- which emits scalar waves -- to drastically speed up radioactive decay of radioelements.

Both plants and animals transmute elements by similar processes.

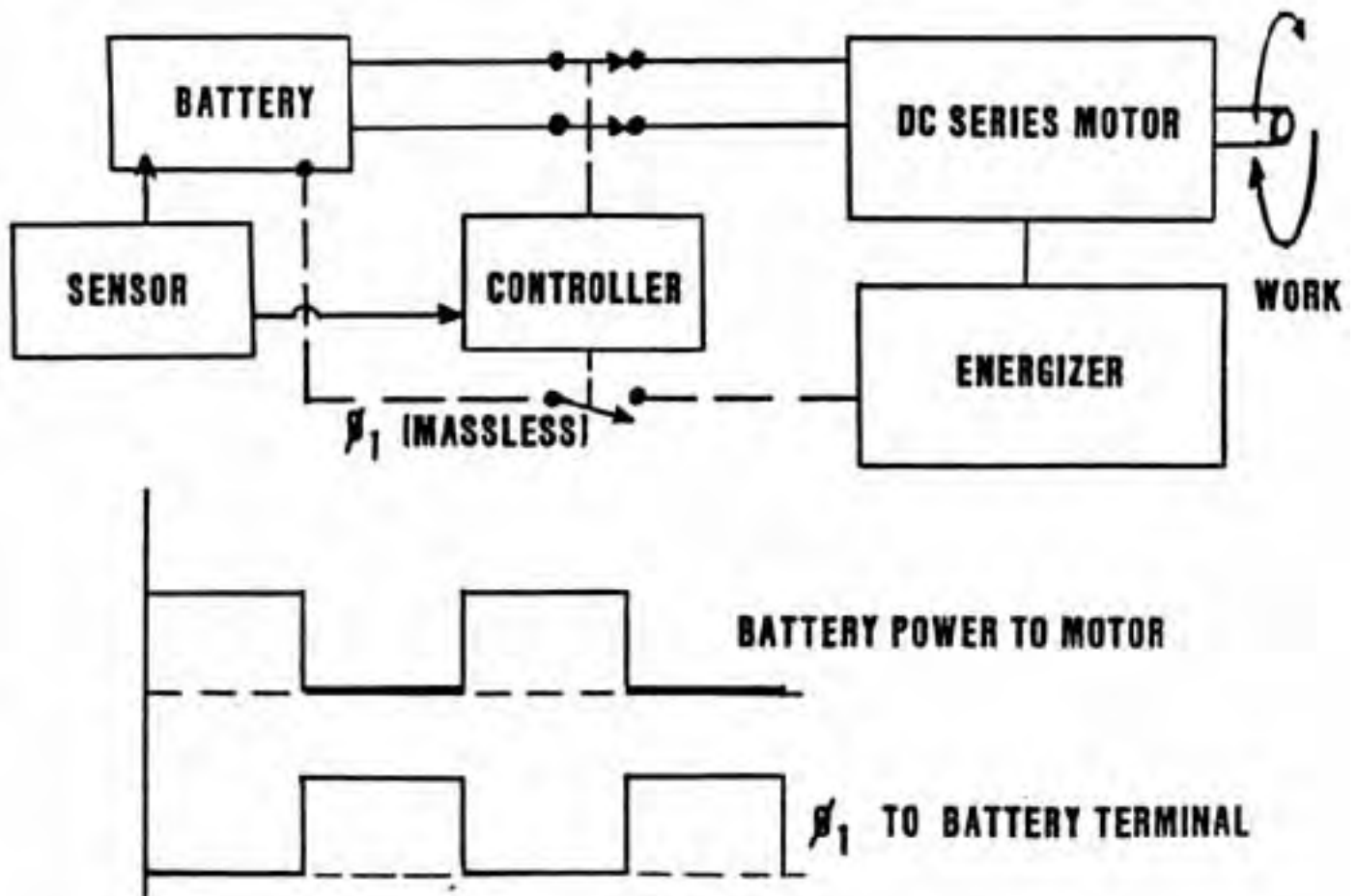
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**TOWARDS A NEW ELECTROMAGNETICS**  
**PART 4: VECTORS AND MECHANISMS CLARIFIED**

SLIDE 40,

## **SIMPLE FREE ENERGY MOTOR**

### **BATTERY RECHARGES ITSELF**



On this slide, we show a theoretical scheme which several researchers have discovered and used to build simple free energy motors.

In this scheme, we drive an ordinary d.c. series motor by a two wire system from an ordinary battery. The motor produces shaft horsepower, at -- say -- some 30 or 40 percent efficiency, compared to the power drained from the battery. This much of the circuit is perfectly ordinary.

The trick here is to get the battery to recharge itself, without furnishing normal power to it, or expending work from the external circuit in the process.

To do this, recall that a charged particle in a "hooking" del-phi river moves itself. This is true for an ion, as well as for an electron. We need only make the del-phi in correct fashion and synchronize it; specifically, we must not release the hose nozzles we utilize to produce our del-phi river or waves.

The inventors who have discovered this have used various variations, but here we show a common one.

First, we add an "energizer" (often referred to by various other names) to the circuit. This device makes the del-phi waves we will utilize, but does NOT make currents of electron masses. In other words, it makes pure  $\emptyset$ -dot. It takes a little work to do this, for the energizer circuit must pump a few charges now and then. So the energizer draws a little bit of power from the motor, but not very much.

Now we add a switching device, called a controller, which breaks up power to the motor in pulses. During one pulse, the battery is connected and furnishes power to the motor; during the succeeding pulse, the battery is disconnected completely from the motor and the output from the energizer is applied across the terminals of the battery.

If frequency content, spin-hole content, etc. are properly constructed by the energizer, then the ion movements in the battery reverse themselves, recharging the battery. Again, remember that these ions **MOVE THEMSELVES** during this recharge phase. Specifically, we are NOT furnishing ordinary current to the battery, and we are not doing work on it from the energizer.

If things are built properly, the battery can be made to more than recover its charge during this pulse

cycle.

To prevent excess charge of the battery and overheating and destroying it, a sensor is added which senses the state of charge of the battery, and furnishes a feedback signal to the controller to regulate the length of recharge time per "power off" pulse. In other words, the system is now self-regulating.

The relation between power pulses and recharge pulses is shown on the graphs at the bottom. Note that regulation may decrease the time of recharge application of the del-phi river.

This system, if properly built and tuned, will furnish "free shaft energy" continually, without violating conservation of anenergy. Remember that the del-phi condition across the battery terminals means that spacetime is suddenly curved there, and conservation of energy need no longer apply.

Again, this system is consistent with general relativity and with the fact that  $\emptyset$ -field alone can drive a situation relativistic. We have deliberately used these facts to do direct engineering. Our "extra energy" comes from shifting phi-flux -- the energy of the universal vacuum spacetime -- directly into ordinary energy for our use. Thus we draw on an inexhaustible source, and our device is no more esoteric than a paddlewheel in a river. The only difference is that, in this case, we have to be clever enough to make and divert the river in the right timing sequency.

This is a free energy device which an ordinary person, who knows a little electronics, can experiment with in the basement. To develop it, one is talking several thousands of dollars and a lot of persistence and tinkering; one is not talking millions.

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**WARNING: THE PRECEDING EXPERIMENTS ARE HAZARDOUS. DO NOT ATTEMPT THESE EXPERIMENTS UNDER ANY CIRCUMSTANCES UNLESS YOU ARE AN EXPERIENCED ELECTRICAL RESEARCHER, EXPERIENCED IN PERFORMING EXPERIMENTS WITH LEAD-ACID BATTERIES AND PULSE CHARGE AND DISCHARGE OF SAME, AND UNLESS YOU ALSO USE ALL SAFETY PRECAUTIONS SUCH AS GOGGLES**

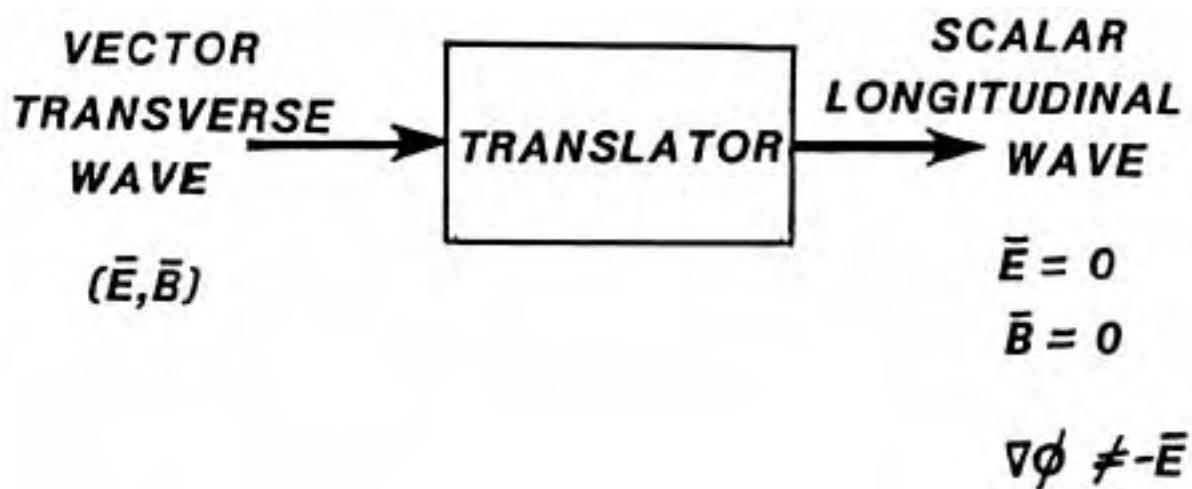
AND PROTECTIVE GLOVES, SLEEVES, AND  
APRON. YOU MUST NOT HAVE OTHER  
INFLAMMABLE LIQUIDS OR OTHER  
SUBSTANCES PRESENT WHICH COULD BE  
IGNITED AND BURN OR EXPLODE. SURGED  
LEAD-ACID BATTERIES PRODUCE  
HYDROGEN GAS, WHICH CAN EASILY  
EXPLODE SINCE SPARKING ALSO CAN  
OCCUR. THE ACID FROM SUCH AN  
EXPLOSION CAN EASILY BLIND YOU IF IT  
GETS IN YOUR EYES, AND IT CAN BURN  
YOUR SKIN. IN ADDITION, LEAD AND LEAD  
COMPOUNDS ARE POISONS, AND ARE TO BE  
HANDLED ONLY BY EXPERIENCED  
RESEARCHERS. THESE EXPERIMENTS ARE  
NOT FOR AMATEURS UNDER ANY  
CIRCUMSTANCE, BUT ONLY FOR  
EXPERIENCED PROFESSIONALS WITH  
PROPER KNOWLEDGE AND TRAINING, AND  
USING PROPER PRECAUTIONS. NEITHER  
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SLIDE 41.

## THE TRANSLATOR



We now turn to a fundamental concept we need in order to understand some of the effects used by the Soviets in their Tesla weapons.

Note that one other country -- one not hostile to the U.S. -- also has such weaponry.

This slide shows the concept of a TRANSLATOR. Briefly, if we input a transverse matter wave, the translator outputs a scalar longitudinal wave without spin vortex hooks. If we input a scalar longitudinal wave -- even one without hooks -- the translator puts out a normal vector transverse matter wave.

We define a translator as anything which will accomplish one or both of those functions (usually both).

Basically, any device which is TOTALLY nonlinear to transverse waves will produce scalar waves from a transverse wave input. Any device which is totally nonlinear to longitudinal waves will produce transverse waves from a longitudinal wave

input.

It is comparable to certain plasmas, which, as is well known, produce such a translator effect. If you input longitudinal waves, you get transverse waves. If you input transverse waves, you get longitudinal waves. And the plasma is rather totally nonlinear.

Again, if our translator outputs non-hooking waves, it means that the component substructure waves oppose each other in sum zero fashion, and "kill" or nullify the vortex spin-holes.

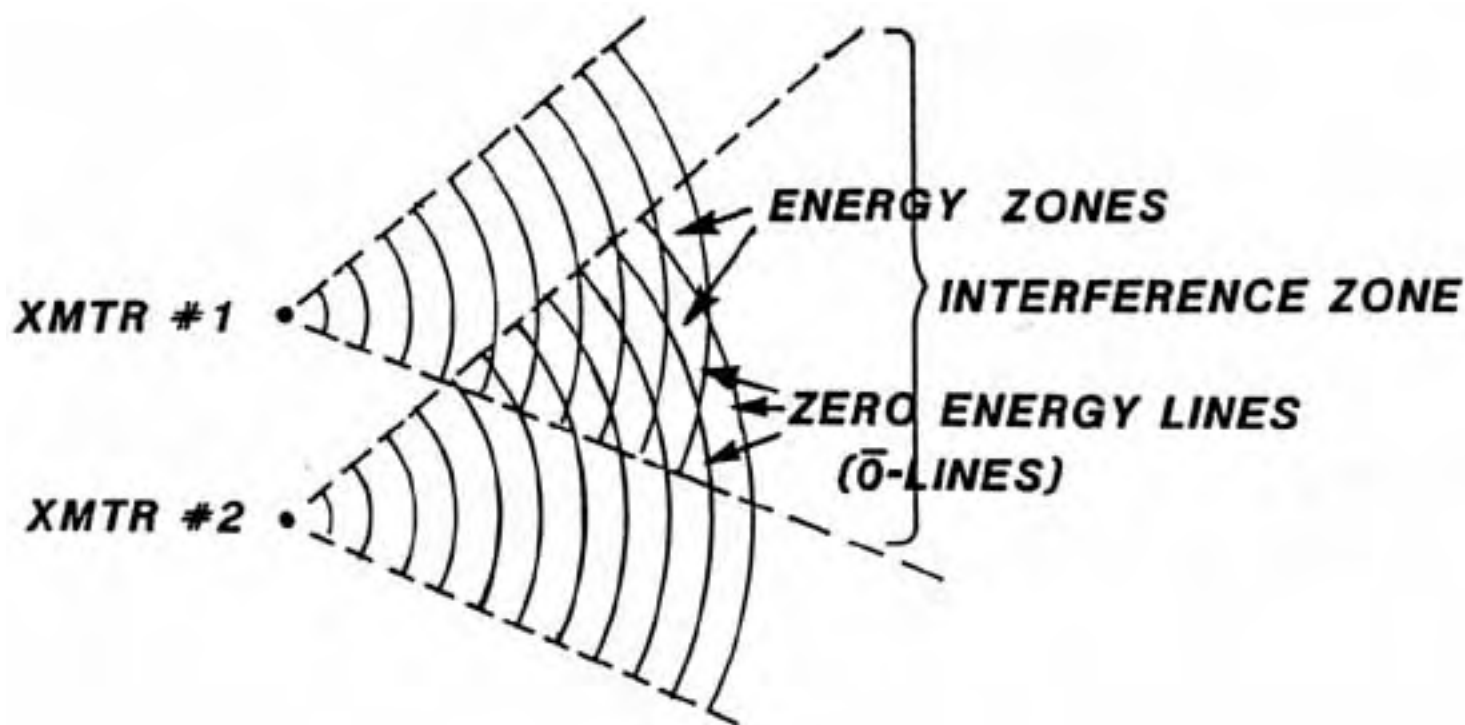
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## [The Tom Bearden Website](#)

SLIDE 42.

### TRANSVERSE WAVE INTERFERENCE

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On this slide we show "normal " transverse wave interference, as we presently teach it in our textbooks.

We visualize two identical transmitters, each producing a beam in a pattern of about 55 degrees of so.

Where these beams overlap -- in the ideal, perfect case, we have constructive and destructive interference, with absolute zero-vector linear regions being formed. We put in the energy, and out-of-phase interference creates the zero zones, which contain no energy as such.

We point out, however, that these zero-lines are scalars, and contain high stresses on spacetime.

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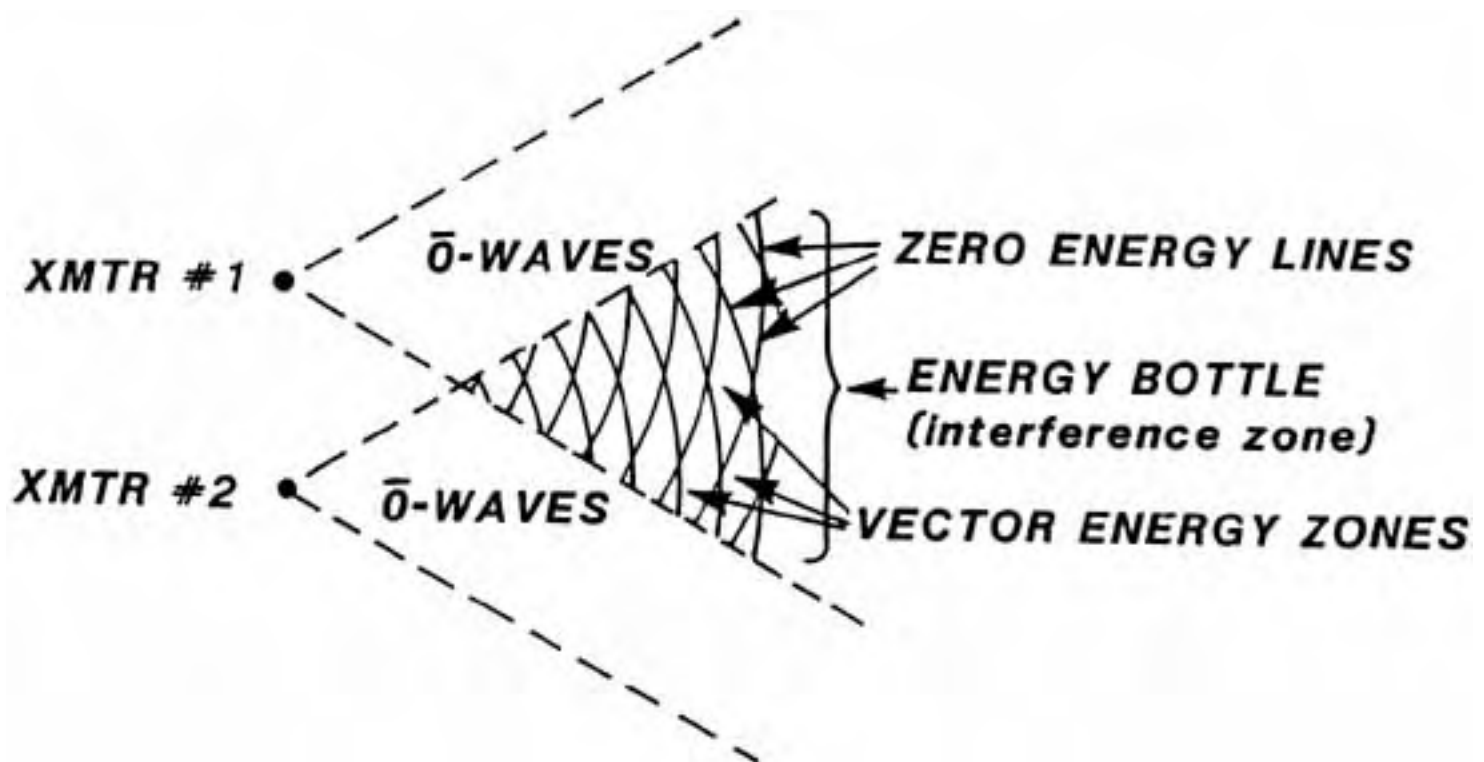




## [The Tom Bearden Website](http://www.chenierye.org)

SLIDE 43.

### LONGITUDINAL WAVE INTERFERENCE [SCALAR WAVES]



On this slide we show the interference pattern that emerges from the interference of two identical scalar wave beams from translator/transmitters.

Now note we are interfering two zero-vector waves, each containing a substructure. In this case we assume similar substructures.

What happens now is that we get a similar interference pattern, but with some startling differences.

First, we put in the zero-lines. These represent in-phase conditions for the substructures.

Second, the substructures themselves interfere, and form energy in the grid zones between intersecting zero-lines.

In the perfect case, however, this energy cannot

radiate away. It is physically created and trapped as if in an "energy bottle." We are CREATING this energy at a distance, and storing it in a bottle. If the bottle were perfect, we would continue to accumulate energy in the grid zones -- notice we are continuing to pour energy into both transmitters, and there is zero ordinary energy anywhere else except in the grid zone "bottles."

If we turn off the transmitters smoothly, we extinguish the energy in the bottle completely. It is sucked right out of there, and the vacuum returns to its normal condition.

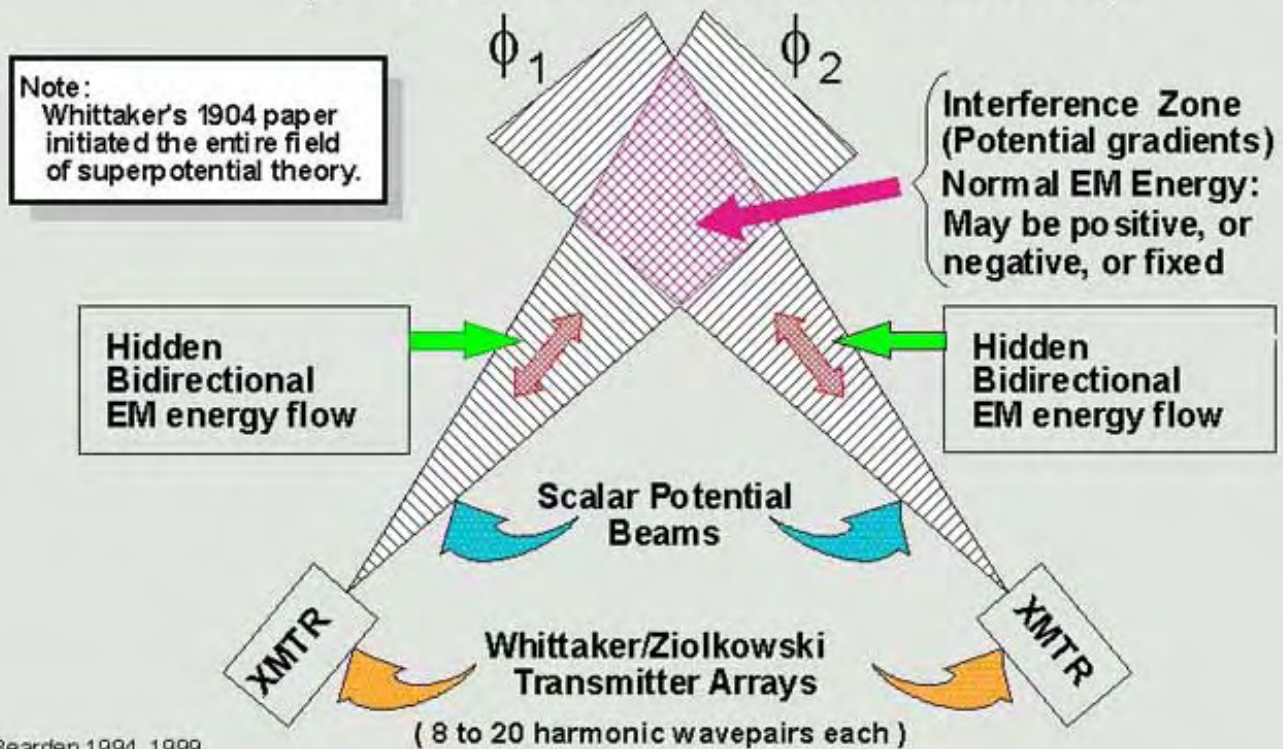
If we erratically and nonlinearly turn off the transmitters, we destroy the bottle and "dump" the energy suddenly. This is exactly like a sudden EMP from a nuclear weapon. A sudden pulse of energy is freed to radiate and interact in the region where the bottle was.

The high altitude booms off the East coast of the U.S. a few years ago were made in precisely this fashion, from such a weapon being adjusted and calibrated in the Soviet Union.

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## CREATING ENERGY AT A DISTANCE

### (Use of Hidden Information Content of the Field) (Can Provide Action-at-a-Distance)



**Figure 5. Scalar potential interferometry (between the two sets of bidirectional longitudinal EM wavepair functions) produces all EM force fields and waves.**

But let us look at one way to do this sort of thing more efficiently.

Here we show two scalar transmitters (that is, two translator/transmitters) which form narrow beams, and which cross those beams at a distance.

In the crossing zone, scalar interference is established, making an energy bottle and producing trapped or locked in energy.

If I have a physical target in that crossed zone, I can literally "fry" the target, for I get all the power inputted to the transmitters contained in the bottle zone. I don't have any square law losses.

I can heat a metal object white hot at a distance, for example. Because all real bottles are slightly imperfect, the real bottle is leaky and some photons escape. I can observe the white hot steel in the bottle,

and I can record and measure the temperature from the escaping photons, by simple radiometric methods.

Now if I smoothly turn off both transmitters linearly, all the energy in the bottle disappears immediately. I can immediately reach in and pick up a black, cool piece of steel. And that cannot be done with ordinary inductive or radiowave heating.

That has been done in a laboratory on the North American continent.

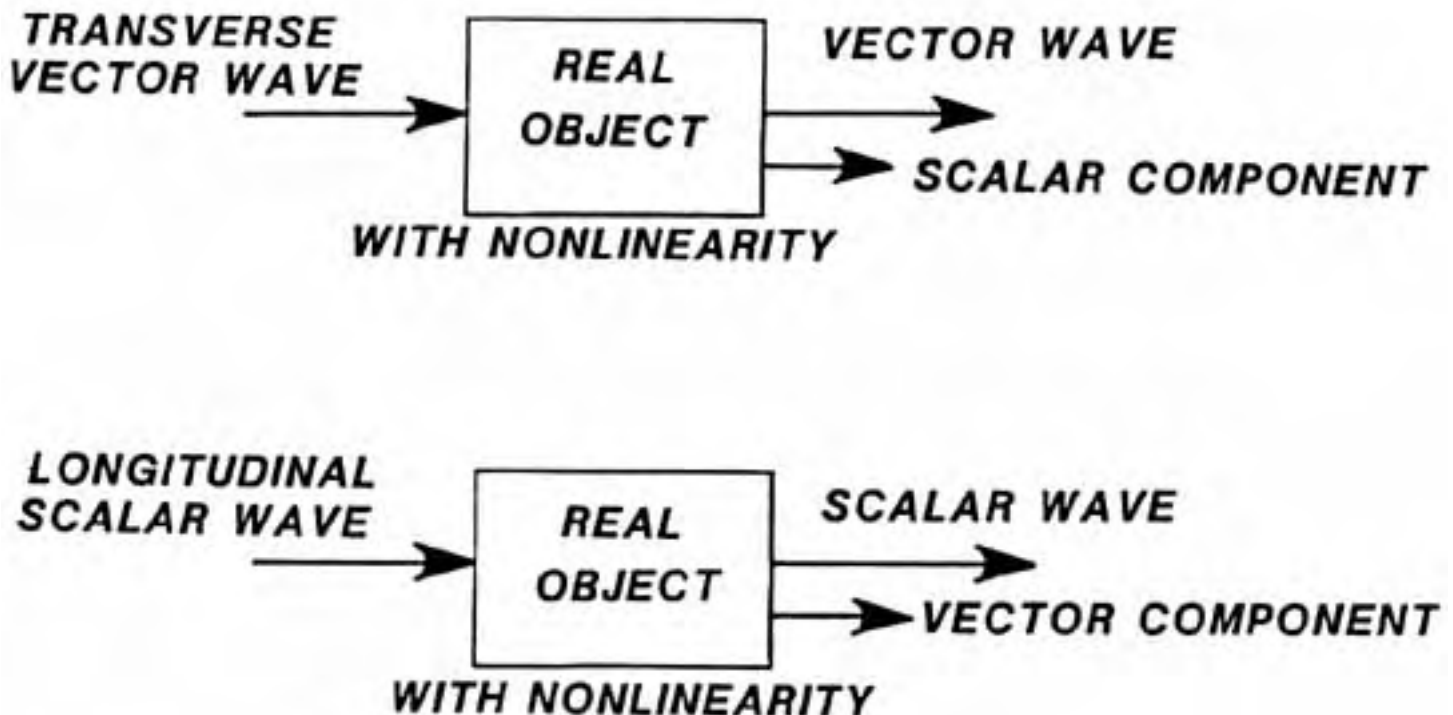
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## [The Tom Bearden Website](http://www.cheniere.org/books/part4/s45.htm)

SLIDE 45.

### **NONLINEARITIES CAUSE SHIFTING [PARTIAL TRANSLATION]**

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Here we show the results of electrical nonlinearities in an object which encounters a true translated (non-hooking) scalar wave. All objects have some electrical nonlinearities in them, and so all act partially as translators.

This means that any real object creates a small scalar aura around itself from its continual temperature interactions -- from absorbing and radiating ordinary EM waves. In addition, the object normally is subject to undetected scalar wave radiations, and so it also produces a small aura of transverse vector waves around itself by translation.

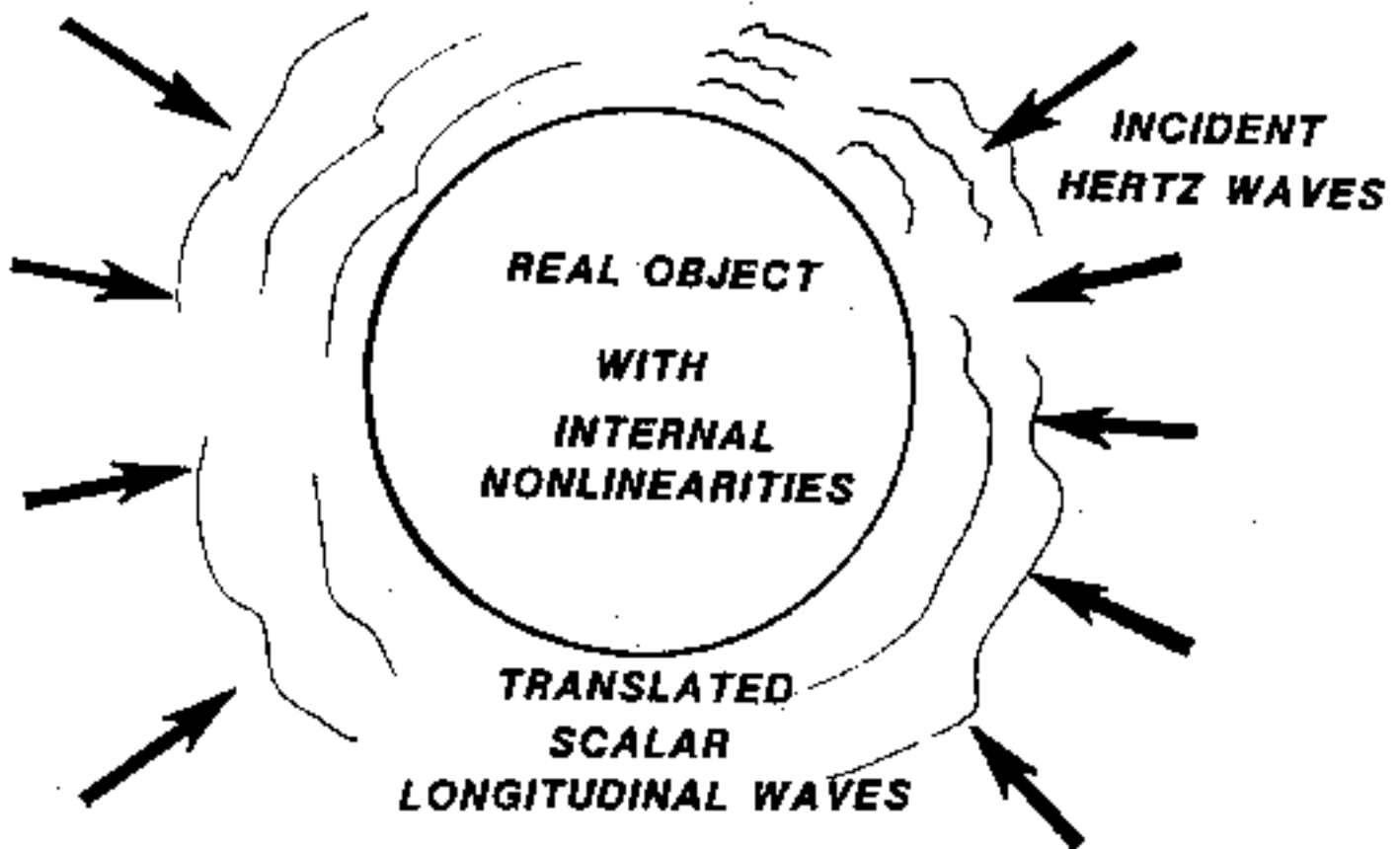
All real objects accomplish at least a little bit of translation.

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**TOWARDS A NEW ELECTROMAGNETICS**  
**PART 4: VECTORS AND MECHANISMS CLARIFIED**

SLIDE 46.

## **THE SCALAR AURA**



We examine now an object with temperature, that is, a normal object continually absorbing ordinary EM radiation and continually emitting EM radiation.

The object has a small fraction of its incident energy expressed as a scalar aura around it, because of translation. Note that normal detectors will not detect this aura, but special two-stage interferometric detectors will detect it. Also note that the object replenishes- the ordinary radiation flow by its translation of some of its incident scalar radiation into the normal or "transverse" (so-called) radiation.



The entire internal pattern -- all interactions and functions of the body -- are precisely present in its scalar aura, down to the finest detail. This makes an x-ray pale by comparison.

True psychics actually use the nonlinearity of their nervous systems (note the avalanche ion discharges across dendrite gaps) and the interferometric aspects (note two cerebral hemispheres, connected by a corpus callosum) to detect the scalar aura. This is a physical fact and not esoteric delusion. To control this, however, is normally as difficult as learning to walk a high wire and do acrobatics on it. There are not many high wire walkers in the world, but it certainly is a skill within human control capability and purview.

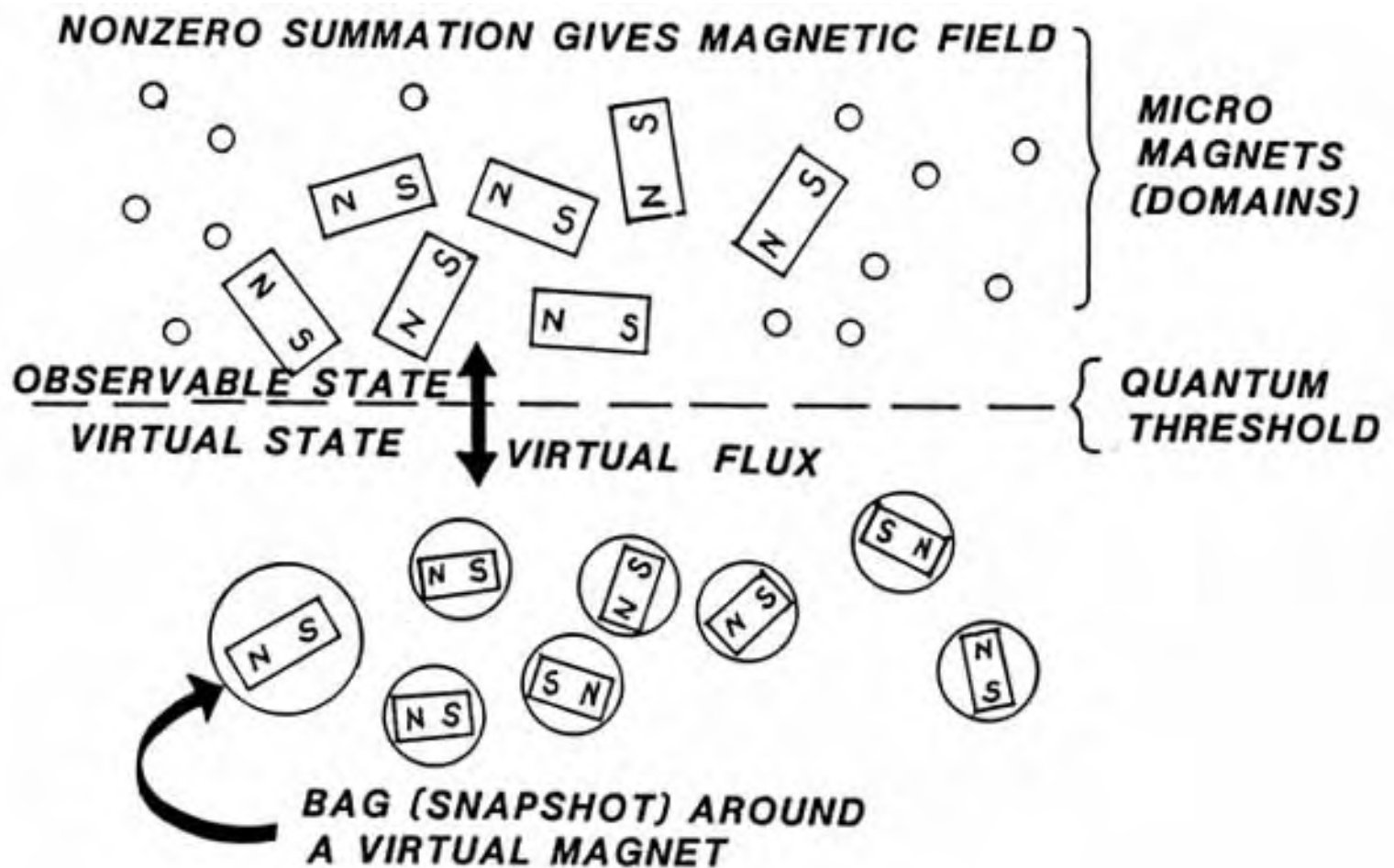
[T. Galen Hieronymus](#) was absolutely correct when he stated that the entire internal working pattern of an object is radiated by that object in terms of an extraordinary energy, which he called "eloptic" energy. It is actually translated scalar wave energy, and entirely consistent with present EM theory when the glaring errors in its foundations are corrected.

Shortly I hope we will see instrumentation which can directly examine the scalar aura in the finest detail, seeing every illness, and simply setting dials to radiate the body with gentle, harmless scalar waves to directly correct illnesses.

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SLIDE 47.

## VIRTUAL FLUX AND MAGNETIC FIELD [LINEAR CASE]



Briefly, let's look at some nice things we can do with magnetism. Specifically, let's find out how to make magnetic monopoles and use them to do things in the laboratory. This again has been done in a laboratory on the North American continent.

First, about all the present science can tell us about a magnet is that "a big magnet is made of littler magnets." And if we examine one of the smaller magnets, it's made of even smaller magnets. This is like saying big dirt piles are made of smaller dirt piles, and that explains what dirt is.

However, let's use that with our knowledge of the virtual flux vacuum.

In this slide, we show diagrammatically the situation for a common magnet. Note that domains in the magnetic material are themselves little magnets, and their alignment and vector summation determine whether or not there's said to be a magnetic field present. Nonzero summation states that there's a resultant magnetic vector, and hence an external magnetic field. Zero summation states there's no external nonzero resultant, hence no external magnetic field.

Actually, there's an external scalar magnetic potential field, even when the external vector magnetic field is zero. The substructure is still there.

If we pursue this "big magnets are composed of smaller magnets," eventually we reach the quantum threshold, and we have a substructure of virtual, subquantal magnets in vacuum, in the virtual particle flux. At least we conceive each little virtual particle as if it were spinning, and hence a little magnet.

We put a conceptual bag around each little virtual magnet.

In a linear situation, the north pole is as strong as the south pole, and so just outside the bag, the poles cancel or appear zero. Since the virtual bag appears to be zero length to an external macro observer, the poles seem to be directly superposed on top of each other, yielding no pole at all to the observer.

However, you and I now know that both poles are still in there, in the virtual substructure, and we certainly have remaining with us a translated scalar magnetic field.

There's a virtual flux to and from each observable particle of charged mass in the observable state as shown, but this flux is now scalar in virtual magnets, except for nonlinearities in the structures

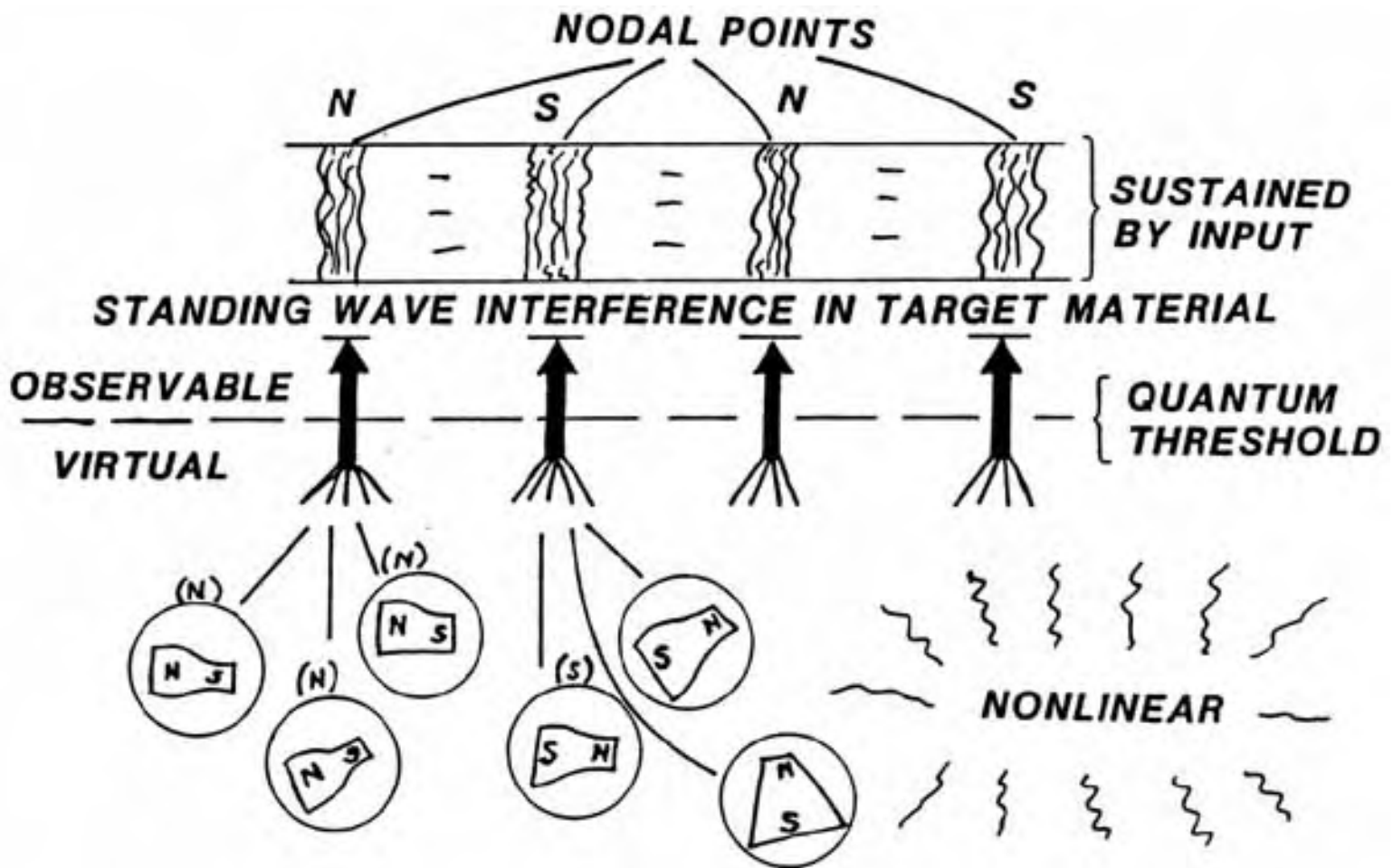
above the quantum level. Thus accelerated portions -- atoms with electrons in whirling orbit, spinning electrons, protons, etc. -- possess nonzero ordinary vector magnetic fields by translation. Again, notice the successive interlocking levels of reality, all the way from deep in the virtual state into interlocking levels in observable state.

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# [The Tom Bearden Website](http://www.cheniere.org/books/part4/s48.htm)

SLIDE 48.

## PRODUCING MAGNETIC MONOPOLES



Now let us look at a non-linear case of the same sort of thing. Now the bags are still around the little virtual magnets, but they are nonlinear. This means that, to an observer outside the bag, one pole seems bigger or more powerful than the other. In other words, to the quantum observer, this bag appears to be a magnetic monopole at a point.

In the flux still on and off each observable spinning charged mass, we now have a steady component of "monopoles". If we have a standing scalar wave present in a physical material in which the nonlinearity exists -- and the scalar waves can even be PRODUCING that nonlinearity -- we will have nodes

available at which the monopoles will congregate and emerge and interact.

North monopoles will congregate at one node, while south monopoles will congregate at the next, and so on in alternating fashion.

That means that, at anyone node, monopoles of the same kind are steadily being "deposited" in the material. These monopoles strongly repel each other, and so the material at that node is increasingly stressed in a tensile fashion.

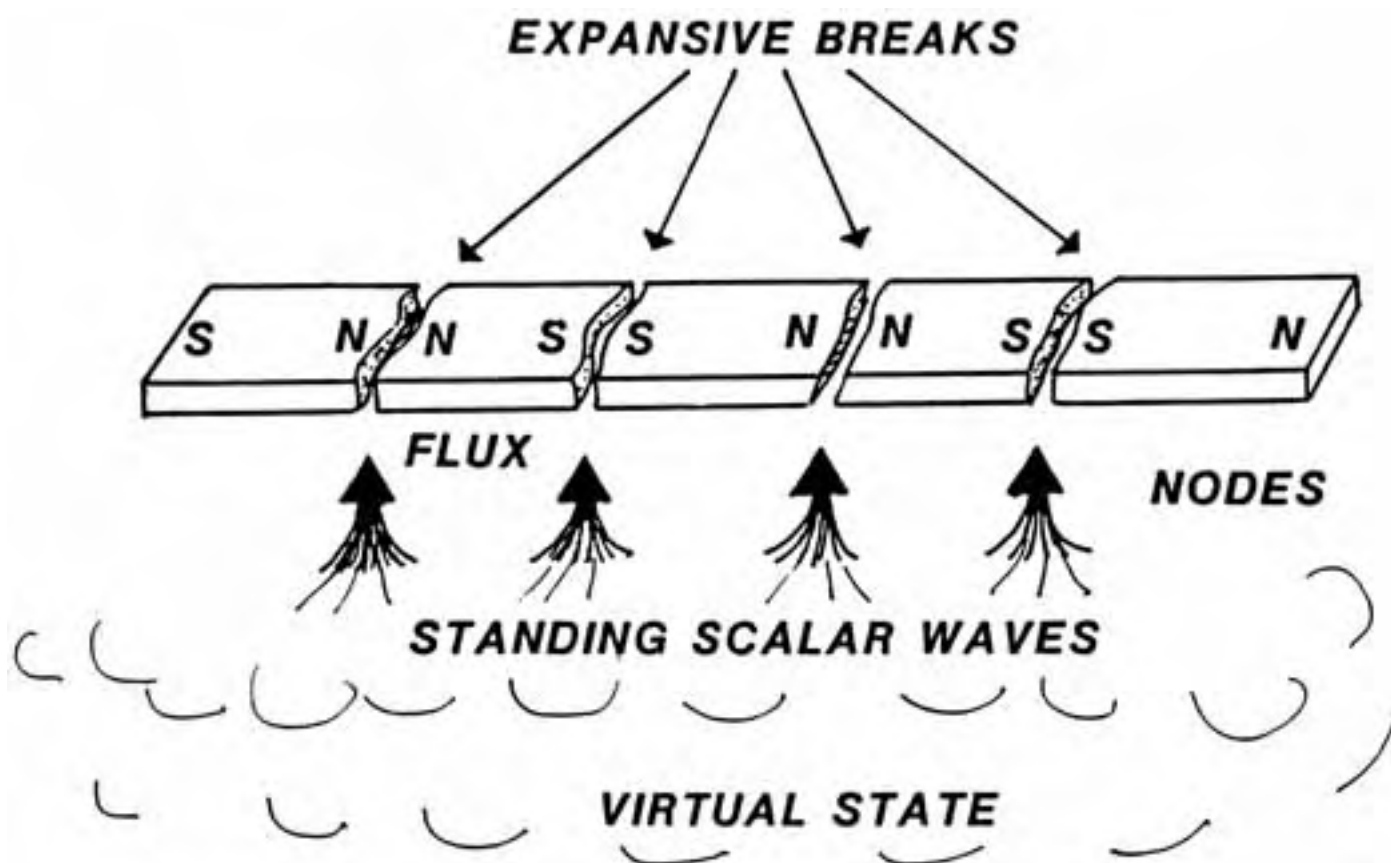
Eventually the material will be torn apart at the node, stress relieving the situation. Movement of the material will release the nonlinear condition, stopping monopole production and deposit. However, at a break node, the same kind of magnetic pole will appear on each side of the break.

That is, the breaks will be N-N, S-S, N-N, S-S, etc.

An ordinary magnetic does not do that when it breaks. Instead, it breaks N-S, N-S, etc.

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## BREAKING METAL WITH MAGNETIC MONOPOLES



Again, metal has been broken in a North American laboratory utilizing the production and deposit of magnetic monopoles in this fashion.

On this slide we show what was done.

An ordinary bar of steel was exposed to standing scalar waves in a nonlinear situation, depositing magnetic monopoles at the wave nodal points in the metal bar. The breaks occurred as shown on this slide.

Much of what I am presenting is based on certain experiments accomplished in experimental laboratories here and abroad. Most of the mechanisms have actually been produced in the lab. However, these are proprietary labs and I cannot violate trust and

reveal the precise construction details utilized. In some cases I have not seen the precise constructions, but only the direct results.

But ironically, the production of magnetic monopoles -- which has fiercely resisted the normal scientific approach -- yields readily to the new approach.

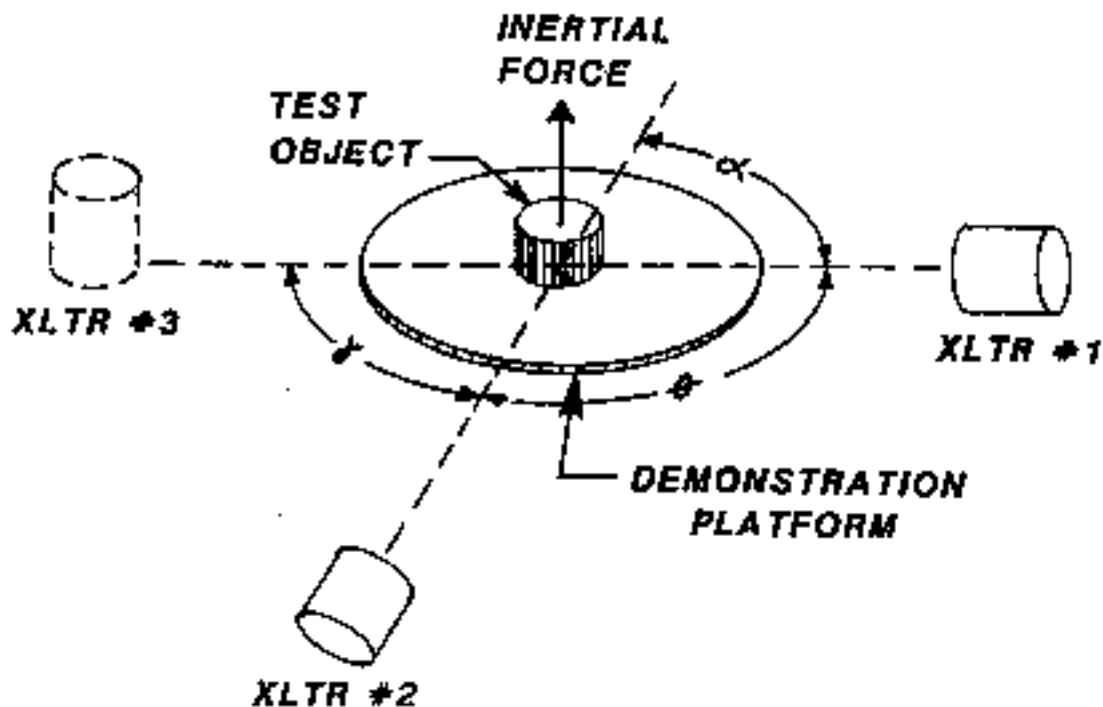
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SLIDE 50.

## CREATING AN INERTIAL FIELD (ANTIGRAVITY)



We now show schematically how to produce an inertial field, or antigravity. Also an inertial space drive can be produced in this manner.

This again has been done in a North American laboratory. In fact, inertial fields have been produced in more than one lab here in North America.

In the setup shown here, three translator/transmitter projectors are used and oriented so as to give three-dimensional interference, or interference along all three spatial axes.

By controlling the substructures of the three projectors all together, one can control the precise phasing in all substructures, with respect to a common time reference.

By this means, a unilateral force can be created of each and every charged mass particle (that is, on each proton) in the nucleus.

Since we know that the neutrons and protons in a nucleus of an atom are continually interchanging, one into the other, back and forth, all of the nucleons can be treated as "diffuse protons" for mass purposes, and scalar wave interaction purposes.

Thus if we have the correct pattern to affect protons, we can control the phases of the substructure waves of the projectors so as to produce unilateral, parallel forces on and of each spinning proton in the nucleus.

This means we can produce unilateral thrust in an object exposed to the triad interference of the projectors.

In short, this produces antigravity. If sufficient force is produced, the test object in the interference zone simply lifts itself off against earth gravity. This has been done in North America.

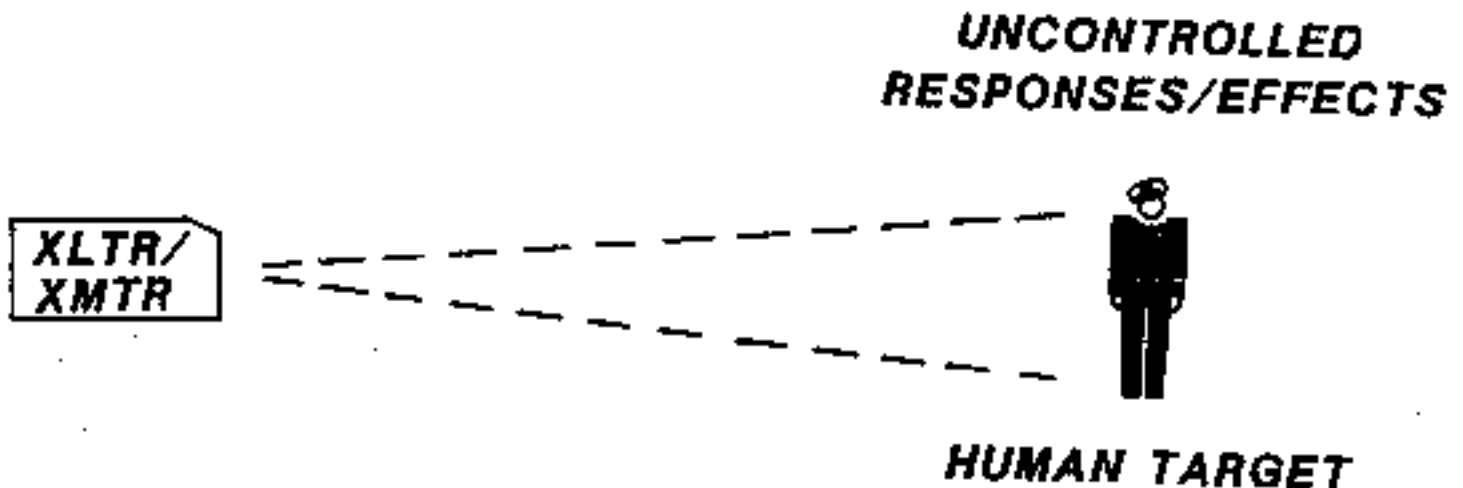
If we phase the projectors so that counterbalancing forces are produced on each proton, we can either make the proton "lighter" inertially or "heavier."

In fact, [we could "freeze" a common pistol](#) so that it could not be moved and its trigger could not be pulled, simply by sufficiently increasing its inertia. [This was done in experimental demonstrations in Toronto, Canada in 1969](#), and witnessed by the [Chief of the Homicide Squad of the Toronto police](#). It was his pistol that was frozen for the demonstration.

If the projectors themselves are on board a space capsule, for example, they can produce such a unilateral thrust in and of a central mass or disc attached to the of the craft. By this means, an inertial spacedrive can be built.

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## EFFECTS ON HUMANS



Now let us look at some of the effects on humans, when radiated with a true scalar wave beam from a translator/transmitter.

First, the human nervous system is highly nonlinear. Essentially, across billions of synapses, sudden ion discharges -- analogous to spark discharges -- are continually or periodically occurring. Brain waves, for example, are not waves along wires; instead, they are waves of avalanche discharges across tremendous numbers of nerve cell gaps.

The central nervous system is thus highly nonlinear, and the gap firings of the nerve endings act as translators.

These translators partially translate incident scalar waves, so that additional transverse matter waves -- or ordinary energy inputs -- occur in the ion discharges.

Thus additional energy is being added to the nervous system by incident scalar waves.

Many long-term effects of the environment on the body are gradually kindled in this fashion, even

over a period of years.

For a stronger dosage of scalar waves, the nervous system experiences "jamming" of its signals. This leads to four basic "noise jamming" effects.

If a small dose is absorbed, the interference is slight. One feels as if one had taken a whiff of anaesthesia -- an unreal, dreamy feeling.

If a slightly larger dose is absorbed, the interference is moderate. Now the single channel system -- the motor system -- goes, and the individual is paralyzed. Mentally he is barely conscious, in a sort of hypnagogic, waking dream state. Any tendency toward epileptic seizure or other nervous disorder may surface here, as may heart palpitations or even heart failure.

For a heavier dosage yet, the interference is now strong. Now the multiple systems start failing. Consciousness is lost and the individual is in a deep coma. In addition, seizures and convulsions, and loss of control of some body functions, may occur. The autonomic nervous system is keeping the heart beating with difficulty and keeping the body gasping for breath.

For a very strong dosage, the entire nervous system fails and death results almost immediately. This is quite similar to the effects of nerve gas.

These are the four major symptoms of scalar wave radiation of the body and translating absorption by the nervous system in an uncoordinated fashion.

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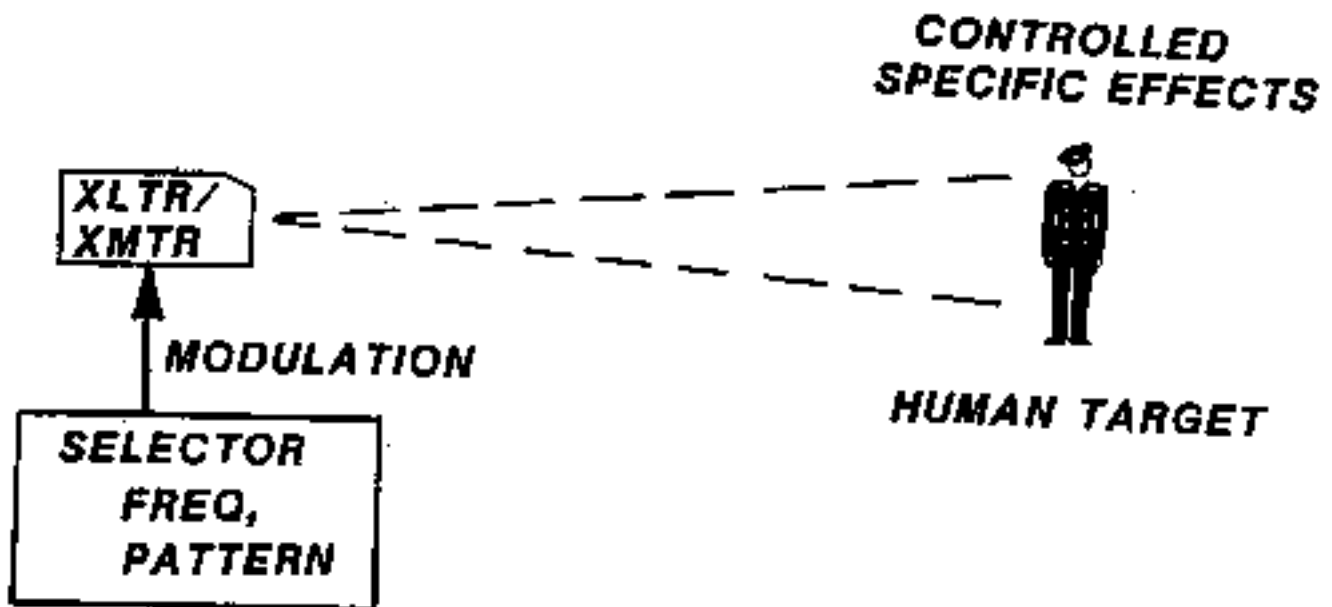
**TOWARDS A NEW ELECTROMAGNETICS**  
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SLIDE 52.

## INITIATING SPECIFIC BIOLOGICAL EFFECTS

**NOTE:**

- **PAVLITA'S 64 POINTS**
- **ADAMENKO'S PLEXUSES**



If we now add precisely patterned modulations to the substructure waves of the scalar zero vector beam, we can induce deliberate patterns in the dosage absorbed by a biological system.

As [Kaznacheyev's experiments](#) showed, any death or disease pattern can be induced upon an electromagnetic carrier -- specifically, upon the near-ultraviolet as an example. Some of his experiments were duplicated at the University of Marburg in West Germany, utilizing infrared carriers. These patterns can be dumped into cell cultures, eventually kindling the pattern of death or disease in the target cells.

The same can be done to a human from an external source. The major entry point is the acupuncture system, which reacts to scalar waves and transfers them to the nervous system for translation.

Pavlita, Czechoslovakian engineer, has built "psychotronic generators" for over 30 years that affect the human body. Adamenko, Soviet physicist, found that the acupuncture points formed groupings or plexuses that were frequency sensitive. In other words, certain frequency bands affect one plexus more than others. Further, these acupuncture points are known to be connected to effects produced at remote locations in the body.

Pavlita stated he had found 64 different sensitive "points" on the body, and had succeeded in building a generator for each. If by his points he meant Adamenko's plexuses, then frequency patterns can be created that affect certain acupuncture groupings -- and thereby certain specific body locations and effects -- more than others.

It thus appears reasonable that, by placing the proper frequency pattern in the modulations of the substructure waves feeding into the translator/transmitter, the scalar ray or beam can be made highly selective as to body part affected and the effect generated or kindled in the body.

By this means, specifically tailored attacks on the body can be created.

Strong emotions such as sheer terror, overpowering rage, blind panic, etc. can be induced. Or physical effects such as epileptic seizure, loss of control of internal functions, loss of muscular control, severe weakness, specific failure of an individual organ such as the heart or liver, or blackouts and comas can be induced. In addition, patterns for specific toxins and diseases can be induced. With a strong absorption, these changes can be effected quickly. Imagine bubonic plague developing in 30 seconds, for example, or the effects of a cobra bite developing in 10 seconds.

If the individual is placed in crossed interference beams (that is, in the interference zone of a scalar interferometer), strong effects can be produced essentially instantly, including instantaneous death.

Of course BENEFICIAL effects can also be accomplished. As instrumentation is developed, one should be able to scan the aura, do a computerized

readout to show the different medical problems either developed or developing in the body, have the computer compose a "cancellation or offsetting pattern," and radiate the body with a totally beneficial pattern, customized for that particular condition at that particular time. One should be able to quickly cure cancers and leukemias, for example, even of the brain and of the bone marrow. One may even be able to quickly reverse the effects of aging; at least there is no foreseeable reason why it should not be possible.

The new technology is a very powerful tool, and it can be used for either good or bad, depending upon the intent of the developer and the user.

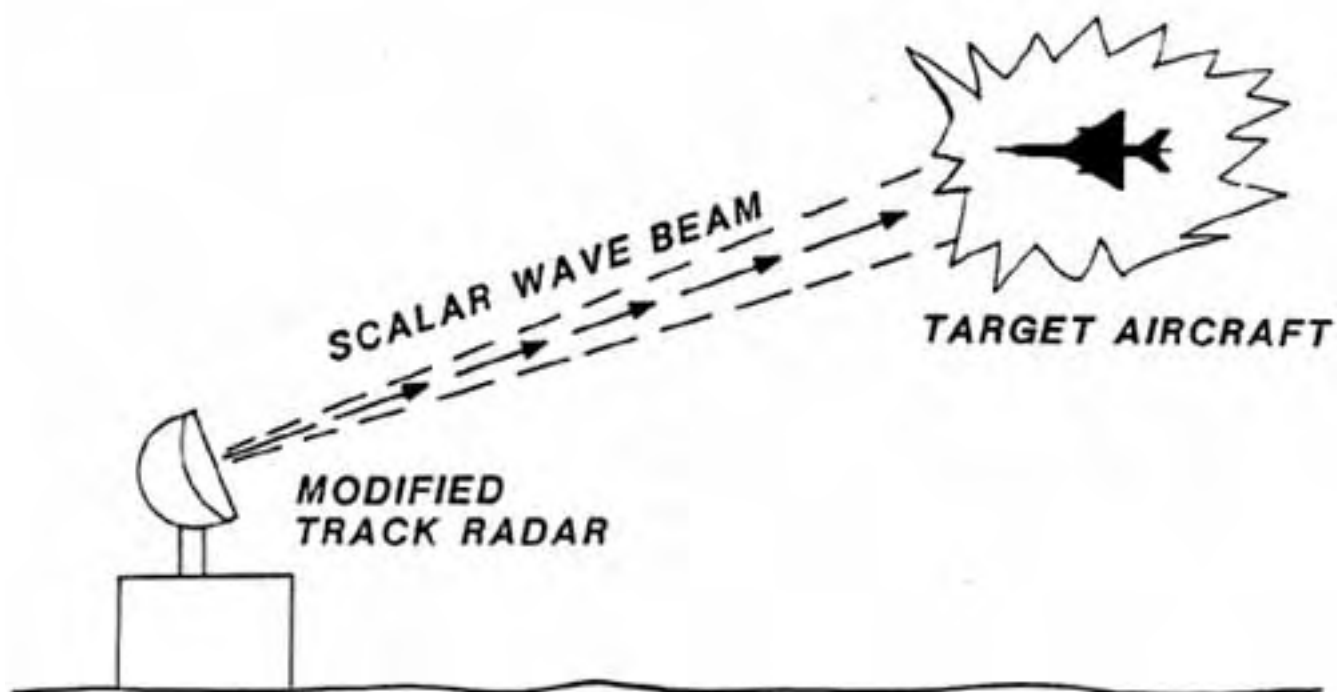
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## [The Tom Bearden Website](http://www.chenierye.org/books/part4/s53.htm)

SLIDE 53.

### **GROUND-TO-AIR USE**

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Here we show another use of the scalar beam technology already developed by foreign powers.

A modified track radar -- either continuous wave or pulsed -- transmits a scalar wave beam. It radiates an incoming hostile aircraft, keeping the beam on it, and kindling energy in the nonlinear electronic circuits of the aircraft by translation. Communications, navigation systems, avionics systems, electronic fuze systems, ignition and control systems, airborne radar, missile armament electronics, etc. are all vulnerable to this translation kindling of internally jamming energy from the incident scalar beam.

The electronics can be knocked out and the aircraft knocked down.

The pilot himself is also vulnerable because of his highly nonlinear central nervous system.

Some or all of the eight F-111's mysteriously



lost in

Vietnam may have been bagged by modified SA-2  
FANSONG radars, using this effect.

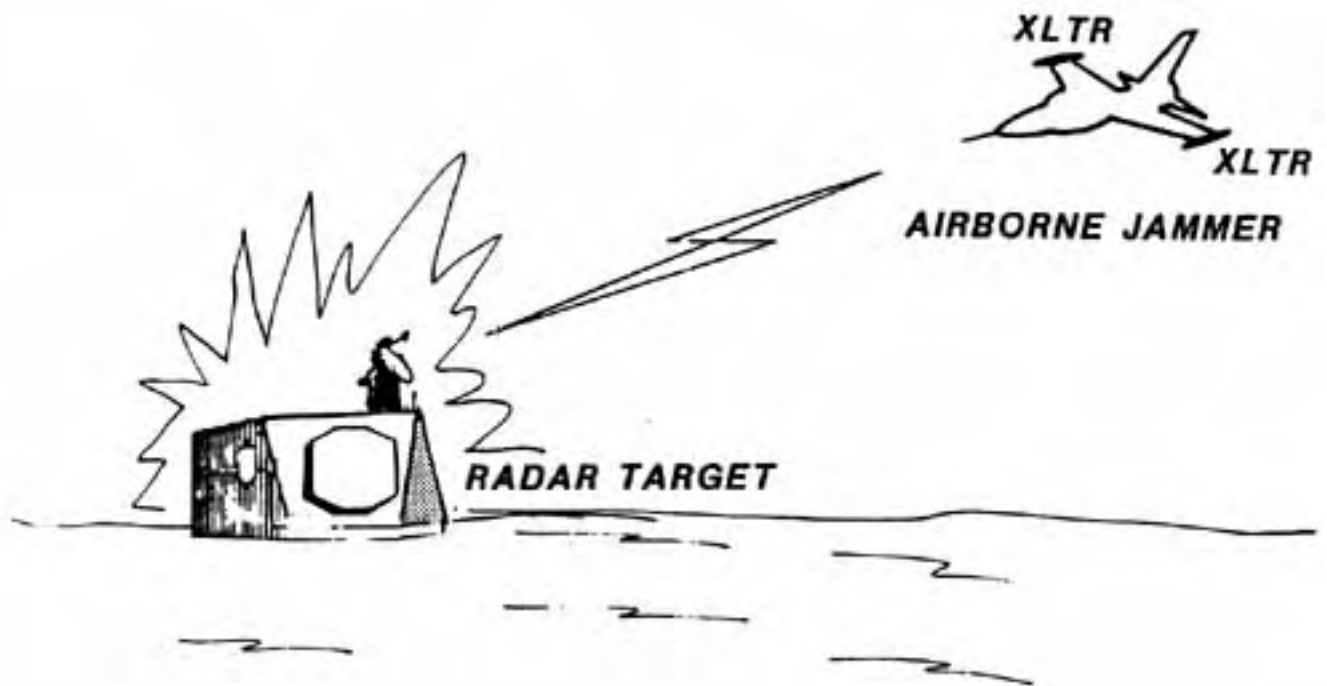
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SLIDE 54.

### TACTICAL AIR-TO-GROUND USAGE

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As shown on this slide, the technology is also usable from aircraft against ground targets, particularly ground-based radars and communications systems.

As shown, the aircraft has a modified jammer, able to emit a beam of scalar energy from one or more translator/transmitters.

By simply training a beam on the radar, eventually the radar can be knocked out. That is the simplest use.

A more sophisticated usage is provided by more than one translator/transmitter, acting as a scalar interferometer.

In this mode, each translator/transmitter emits multiple scalar carrier frequencies. Two Fourier expansions are established, so that a three dimensional "ball" or sphere of interference-zone energy is established. By pulsing or phasing, this ball is moved to strike the location of the radar, delivering a large burst of energy to it and knocking it out. Alternatively,

the energy bottle is "dumped" when it reaches the targeted radar or its near vicinity.

A still better way is to fire one Fourier scalar pattern directly at the target radar, then fire a second pulse faster so that it overtakes the first directly upon the target. (The ensemble of such a pattern acts as a soliton, and its velocity is controllable by controlling the amplitude of the pattern generated).

When the second scalar overtakes the first, a sharp interference is formed, with a fast energy bottle, which is then nonlinearly dumped in microseconds or milliseconds. In this fashion, all the energy put out by the jammer is delivered directly upon and into the target in one sharp EMP pulse, much like that from a small nuclear explosion. The target is destroyed.

Note that such a weapon can be utilized against tanks, vehicles, explosives, missiles, ammunition, bridges (the airblast), bunkers (the blast can occur INSIDE the enclosure), ships, planes, personnel, and targets of varied types.

The Soviets have had such secret weapons for years.

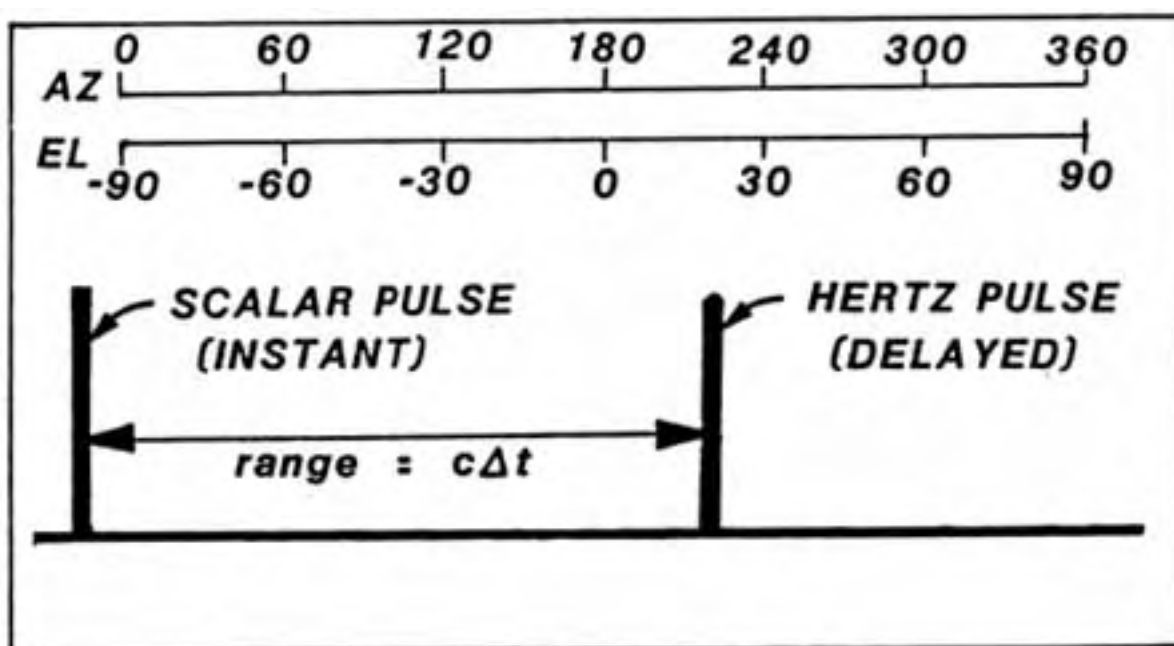
One additional country has them also.

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SLIDE 55.

## INTEGRATED WEAPONS DISPLAY (MODIFIED JAMMER)



Here we show diagrammatically what a modified Soviet integrated weapons display for a modified jammer might be, to employ scalar interferometer weaponry.

As the "main bang" is emerging from the antenna of the target radar on the ground, the phi-field from it reaches to infinity, including through the aircraft with a finite magnitude. In the aircraft, two channels act in interferometer fashion as a scalar detector for phi-dot. The main bang creation (phi-dot) is detected, and displayed as the leftmost pulse.

At that time, a computer time-base starts clocking off microseconds.

At some time later, the third channel, acting as a normal receiver, receives the ordinary "Hertz" pulse from the radar, which has traveled to the aircraft at the

speed of light.

The computer converts elapsed time between the scalar pulse and the Hertz pulse to range.

Azimuth and elevation angle to the radar are obtained by normal angle tracking.

At this time, the computer has the exact coordinates of the radar, allowing for motion of the aircraft during the lapse time.

The computer switches the interferometer into transmit mode, and arranges amplitude patterns to target the radar.

It fires the first scalar pulse, then fires the second so as to create the full EMP directly upon the target.

The EMP flash occurs, destroying the radar.

At that time, another target can be processed.

In a more advanced weapon, scanning may be used to detect, locate, target, and engage multiple targets, including incoming air-to-air and surface-to-air missiles, one after another.

The same weapon is usable against a variety of aerial and ground based targets.

The major weapon is the electronic emitter, not a missile or ordinary ordnance.

Hordes of such special "jammer aircraft" now become a potent force on the battlefield, destroying all before them with annihilating ray weapons.

Star war is a reality now.

The High Frontier is already seriously obsolete.

Our entire defense establishment is completely vulnerable to these weapons at present, for we have not developed countermeasures or defenses.

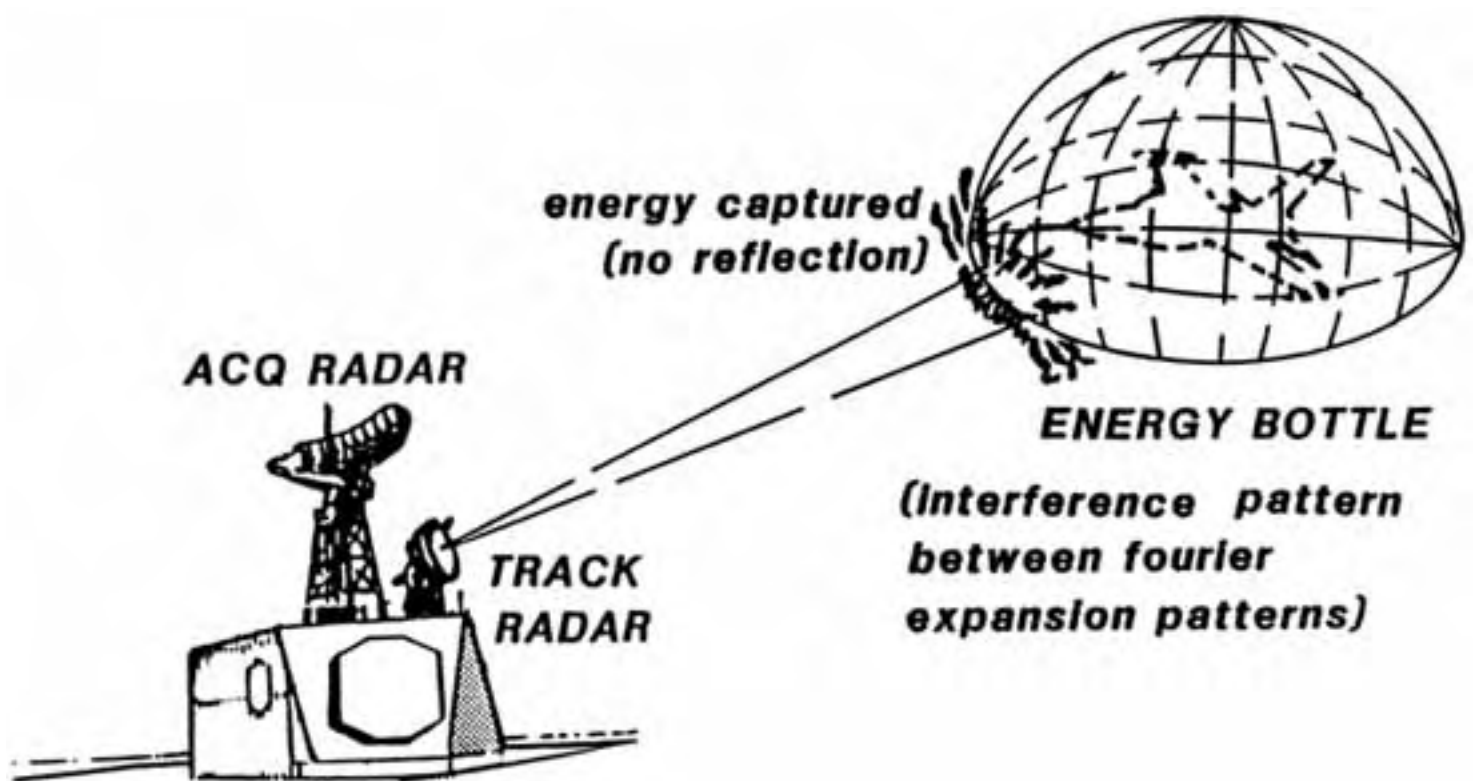
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## TOWARDS A NEW ELECTROMAGNETICS PART 4: VECTORS AND MECHANISMS CLARIFIED

SLIDE 56

### RADAR INVISIBILITY



On this slide we show another effect which can be obtained. We can make an airplane invisible to ordinary radar.

Imagine now the same "jammer" type aircraft with three channels, one for use in scalar interferometry and one as an ordinary channel.

This time, a [Fourier interference pattern](#) is established around the aircraft, so this establishes an "energy bottle" around the plane. We specifically arrange this bottle in the frequency band of the hostile radar we wish to avoid. For multiple bands, we establish multiple bottles -- this just requires more

frequencies or more translator/transmitters.

The beam from the ground radar now strikes the energy bottle, and its energy enters and is trapped in the bottle grids. Since the bottle is leaky, the incident energy gradually disperses and "leaks" out all around, with very little emerging energy.

The ground radar receives no return pulse or reflection.

Therefore it sees no target.

The same interferometer system is usable both in this defensive screen fashion and in the attack fashion previously discussed.

Use of this system has been demonstrated internationally.

An energy bottle has been created in a North American laboratory as well.

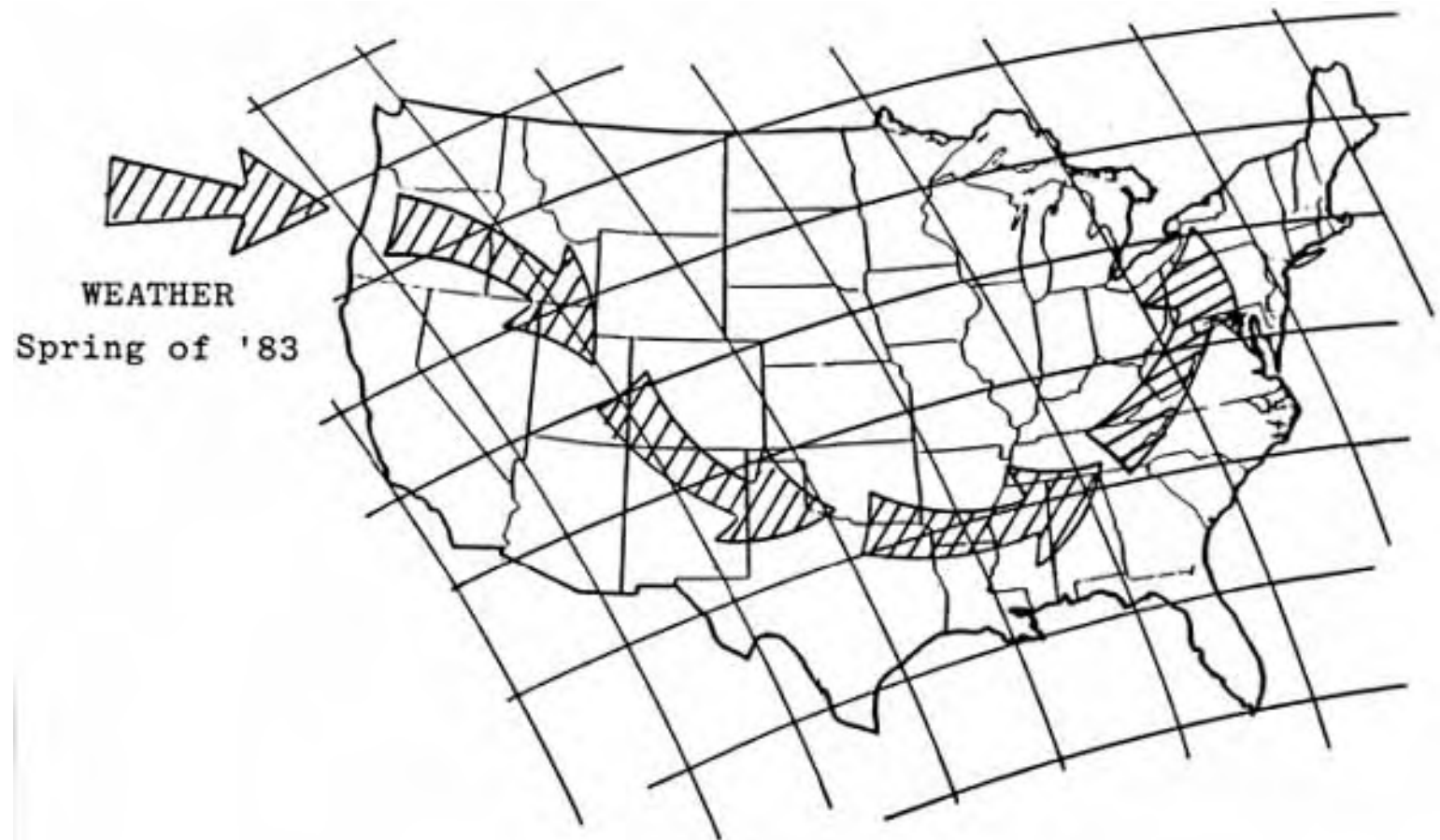
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SLIDE 57.

### **NETWORK OF VIRTUAL TRANSMITTERS**

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As is well-known, for years the Soviets have blanketed the world with large, powerful transmitter signals in the communications band, referred to as the "Woodpecker" signals because of the staccato noise the chirped signals make to the ear. The carriers have been modulated with known harmful bioactive ELF frequencies. At least some effects have been noted on humans from these signals, and other human effects are suspected but not proven.

In addition, evidence exists that such transmitters, utilized in the scalar transmission mode, may have been used to cause earthquakes and to control the weather. High altitude bursts off the coast of the Eastern United States and Canada, over



Timmons, Ontario, Canada, and off the coast from St. Petersburg, Florida have occurred also.

Mysterious "blackouts" of U. S .satellites -- and British satellites -- have occurred. These would be difficult to explain as the result of illumination from a ground laser, but easily explained as the result of illumination from a ground-based scalar beam or scalar interferometer.

Strange patterns of micro sky quakes and micro earthquakes occurred at various locations throughout the U.S. just before and shortly after the death of Leonid Brezhnev. These strongly appear to be connected with the adjustment of a scalar interference pattern -- a gigantic "energy bottle" across North America, as shown on this slide.

Shortly after this suspected adjustment and alignment, the underground net in the U.S. detected the emergence of numerous ELF-modulated signal carriers throughout the U.S., generally utilizing carriers in the vicinity of 40 MHz. Locations of the apparent transmitters were such places as Atlanta, North Georgia, St. Petersburg, Florida; Mississippi; Alabama; in the vicinity of Washington, D.C.; near Boston; around the Great Lakes; Michigan; in the Pacific Northwest (Washington and Oregon); and in both northern and southern California.

Researchers knowledgeable of the Soviet woodpecker signals and ELF modulations detected and reported these signals.

Physical effects were reported and correlated to the signals, including wakefulness at night, restlessness, fatigue, headaches, nausea, ringing in the ears, anxiety, disturbed dreams, etc.

What appears to have occurred is the adjustment and alignment of a vast scalar interference pattern across the U.S. Recall that energy emerges in each grid, by phase interference between the composite substructure waves of the scalar beams.

Thus the Woodpecker "over-the-horizon radars," as accepted by Western intelligence analysts, may have acquired a diabolical new strategic capability.

It is as if the Soviets had been permitted to build a vast network of transmitters directly on U.S. soil, for hostile employment against U.S. citizens.

Shortly after the net was aligned, a curious pattern of weather assaults on the U.S. began.

Storms assaulted California unceasingly. Then they roared across the Rockies, dipping sharply down to hit the Texas Panhandle, and bending northeast again to assault the South and the East.

The mighty jetstreams themselves were diverted and "kinked" into this looped, distorted pattern.

And the storms and floods assaulted the U.S. one after the other in this highly unusual fashion.

I maintain that the virtual transmitter net, just established by the Soviets and adjusted in on the U.S., was tested in the weather control mode. If so, it proved highly effective. Imagine what would have happened to the U.S. if it had been unleashed full force, and not just "gently tested."

And imagine what happens when disease, death, and nervous system disturbances are modulated upon these blanketing signals. The "transmitters" for the patterns are in each grid, all across the U.S.! And there are no physical transmitters there to destroy.

A counter is needed quickly. A simple one would consist of recording the signals in each grid zone, analyzing the substructure, reversing the signals and their structured patterns 180 degrees, and feeding the "cancellation signals" out in each area.

A great strategic Russian weapon of devastating power and potential is now operating directly on U.S. soil. The need for a crash countermeasures program is urgent.

In 1975 Brezhnev had introduced to the SALT talks the strange proposal that we should also consider outlawing the development of new weapons more frightful than the mind of man had ever imagined. We didn't know what the Russians were talking about. When we asked them later what weapons they meant, they referred vaguely to weapons of an electromagnetic nature.

The presentation I have just given you is part of what Brezhnev meant.

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## [The Tom Bearden Website](#)

SLIDE 58.

### CONCLUSION

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In conclusion, today I have released a number of powerful mechanisms that result from the new technological concepts. Many of these were originally discovered -- at least in rudimentary form -- by Nikola Tesla. In the West, the suppression of Tesla led to the suppression of these effects. And our knowledge of them went to the grave with Tesla.

After World War II, the Soviet Union mounted a massive campaign to obtain all the scientific literature of the West and thoroughly digest it. Great centers were set up, and thousands

of PhD's devoted to this purpose. Gradually they synthesized this technology from the errors in EM foundations they uncovered, and from obscure, ignored papers published in the orthodox Western scientific literature.

They rediscovered the technology of Tesla, Moray, and Rogers. And they have highly weaponized the effects, and adjusted and aligned the weapons upon us.

Now the radical movements are onto part of this technology. As late as about six months ago, one such group discovered how to build a translator and a scalar beam projector. Excitedly, they planned to build them the size of a large pistol, powered by a portable battery pack, and sell them to street criminals to kill or stop the police. They planned to get rich by this illicit means. At that time, a personal friend of mine, who moves in underground circles, was attempting to purchase one of the prototypes for my analysis. Fortunately, the inventor stepped into the beam of one of his devices and was almost killed. This frightened the group, and at least for now they have desisted. But be forewarned: this technology is coming down the pipe, and the police establishments in the West are in for the shock of their lives if the scientific community does not wake up and prepare defenses.

Again I urge my fellow colleagues to experiment vigorously with these new concepts, but build equipment for the benefit of man. Insect control, disease elimination and control -- both are noble purposes. Defense against the hostile use of such devices is also a fitting purpose.

We are in the final days, and the final technology is upon us. It is a stupendous tool for either good or bad, and assuredly it will be utilized for both means. I call attention once again to the fact that my ultimate purpose is to use this technology benevolently to achieve mind linkage, and elevate man from his present brutish state to the lofty state that is his destiny and his true God-nature.

For better or worse, Tesla technology is once again loose in the world, this time for good, and on a massive scale.

Let us prepare ourselves for a wild canoe ride, for the real white water lies just ahead.

Thank you for your attention, and good evening.



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# Strategic Aspects of the Asymmetric War on the U.S.

## Including Scalar Electromagnetic Weapons and their Terrorist Uses

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### Cold War Development of Scalar Interferometry

Prior to 1990, the weather over North America was being steadily engineered by the KGB — particularly beginning on July 4, 1976 — using giant strategic scalar interferometers on site in Russia {i, ii, iii, iv}. From the beginning of the development program which started shortly after WW II, the KGB personally controlled the development of startling new Russian weapons under the Soviet energetics program {v, vi, vii}. That program was for the research and eventual development of highly advanced new superweapons more powerful than the atomic bomb.

The new superweapons were developed, produced, manned, and operated by the KGB itself, and were never placed in the hands of the regular Russian armed forces. Speaking to the Presidium in 1960, Khrushchev referred to the forthcoming scalar interferometer weapons with the following statement:

"We have a new weapon — just within the portfolio of our scientists, so to speak — so powerful that, if unrestrainedly use, it could wipe out all life on earth."

The large Soviet strategic scalar interferometers were deployed and became operational in April 1963 — a bit too late for use by Khrushchev to counter the U.S. confrontation in the Cuban Missile Crisis of latter 1962. However, the first operational weapon was used to destroy the U.S.S. Thresher nuclear submarine while on underwater maneuvers off the East Coast of the United States, in April 1963. Thereby Khrushchev demonstrated the power of his new weapons over nuclear submarines — one of the major three elements of the strategic military nuclear firepower of the United States. Extension to the other two elements — intercontinental ballistic missiles (ICBMs) and strategic bombers — was obvious.

### Incidents Where Outside Intervention Saved the United States

Many dramatic but largely unheralded incidents occurred during the so-called "Cold War". For example, in the 1970s a small nation saved the United States from total destruction by Soviet nuclear weapons which had been inserted in our

cities. That nation did it very simply: they likewise inserted an appreciable number of nuclear weapons of their own, some thermonuclear, inside Russia itself, in its population centers and its primary target zones.

All these inserted nuclear weapons — both in the United States and in Russia — are still there with their activation teams, waiting. In such manner was the "balance of terror" — the Mutual Assured Destruction or MAD doctrine — really implemented and enforced vis a vis the Soviet Union. At the time this approach to deterrence was called "Dead Man Fuzing".

In April 1986 a private little U.S. group intervened to prevent a forthcoming giant earthquake that was being built up for the greater Los Angeles and San Francisco areas by the KGB scalar interferometers. Via a special electronic device, the group suddenly destroyed one of the distant Soviet scalar interferometer transmitters — thereby initiating the nearby Chernobyl nuclear incident but preventing the loss of perhaps 200,000 U.S. lives in Los Angeles and San Francisco, together with preventing terrible destruction and economic damage.

Also in 1986, the same friendly little nation again prevented our strategic destruction by even more powerful energetics weapons developed by the Soviet Union. As early as 1984, the friendly nation simply began exploding very large Russian missile ammunition storage sites, to warn the Soviet Union of what was in store for it, if it attacked.

In 1997, again the U.S. would have been utterly destroyed on two occasions had it not been for the same little nation. Several professional colleagues and I played a desperate role in both of those frighteningly real incidents, which were never reported in the news media. Indeed, our own intelligence agencies had no inkling that a full strategic Soviet superweapon attack to destroy the United States was imminent on each of the occasions (the second of which would have occurred on May 1, 1997) {viii}. The May Day attack for 1997 would have been the "big one", had the Federal Security Service (FSB/KGB) not been checkmated by "an offer it could not refuse" — delivered once again by the friendly nation. During those critical periods when every hour on the clock seemed a week in length, the hostile armada that would have struck us included the Japanese Yakuza and Aum Shinrikyo teams on site in Russia, operating leased KGB/FSB strategic scalar interferometers against the U.S.

### Yakuza Acquisition of Soviet Superweapons

With the collapse of the old Soviet Union's economy, by the end of 1989 the Russian financial situation was grim. By courtesy of the Russian Mafia {ix} — which works directly for the FSB/KGB — a rogue Japanese group consisting of the Yakuza {x} and the Aum Shinrikyo cult {xi} was conducted to Russia in latter 1989, met with the KGB, and leased some of those large KGB strategic scalar interferometers on site in Russia {xii}. The down payment was \$900 million U.S. in gold bullion, and the lease is rumored to be some \$1 billion per year. The payment was no problem for the Japanese team. The Yakuza had ripped off the

Japanese taxpayer for hundreds of billions of dollars, never repaid, and so the rogue Japanese group could easily afford such leasing {xiii}.

The Yakuza and Aum Shinrikyo then assigned teams to man those superweapon sites and begin weather engineering operations against the United States and other targets. The Aum Shinrikyo even set up a small university in Russia where the energetics theory and technology could be taught to the rogue Japanese teams by the KGB scientists.

After much training, in 1990 the rogue Japanese teams began operating the leased interferometers {xiv} worldwide for weather engineering and other purposes under the supervision of the FSB/KGB. The Yakuza and its vast resources worldwide were thus incorporated into the FSB/KGB planning and coordination for the coming destruction of the United States and the Western world.

Much later, Western investigations into the Aum Shinrikyo did clearly establish the sect's links in Russia, but missed the major involvement of the Yakuza. The Soviets easily made it appear that contact of the Aum Shinrikyo with Russia had been harmless (with the exception of the sarin nerve gas). Quoting Turbiville {xv}:

"Russian, Japanese, and other investigators quickly identified a substantial number of [Aum Shinrikyo] sect members in Russia, including members in the government and other walks of life. Media commentators took note of a 'gas analyzer' of Russian origin seized at a sect facility; reports of Aum Shinrikyo sect members among Russian Radiation, Chemical, and Biological Defenses Troops; alleged sect ties to the Russian Academy of Sciences; the large volume of commercial Russian ship and aircraft traffic between Russia and Japan; and other issues that suggested questionable Russo-Japanese linkages to sarin production or transport... Official Russian military and security service spokesmen, while acknowledging Aum Shinrikyo's presence in Russia, reiterated the absolute security of military chemical depots and munitions..."

So it was that in early 1990, the FSB/KGB transferred their North American weather engineering operation to the Yakuza/Aum Shinrikyo teams, who perpetuated it using the Russian scalar interferometers that the Yakuza had leased. Today the rogue Japanese teams on site in Russia and elsewhere continue their weather engineering against the United States under FSB/KGB supervision.

At the end of 2004, the FSB/KGB and Yakuza entered the 2-year "Operations Phase" of asymmetric war against the United States. Weather operations — including Hurricanes Charlie, Frances, Ivan, Jeanne, etc. — intensified and remain intense, wreaking great economic damage. The program included directly influencing and controlling each hurricane's power and behavior, as well as directing its course, speed and targeting path. Indeed, Ivan did a 180 degree turn, and Jeanne did a 360 degree loop before reaching Florida, demonstrating an unprecedented and sophisticated level of storm control.

Meteorologists do recognize periods of increased or decreased hurricane activity for various reasons {xvi}, but very few consider deliberate human induction of

hurricanes or human control over their direction, power, and progress {xvii}. Fortunately, a few do.

Indeed, in latter March of 2004, Hurricane Catarina — the first-ever recorded in the South Atlantic — formed and came ashore in Brazil on March 28 with 90 mph winds, doing substantial damage. So while the conventional wisdom is that hurricanes cannot form (naturally) in the South Atlantic, this one did and "broke all the records". It appears to have been a deliberate probe by the Yakuza: Produce and drive ashore a hurricane where the textbooks state one is impossible, to test whether Western governments and scientists recognize the artificial weather engineering. The answer, of course, is that — as expected — the West did not recognize its importance, or that it was a deliberate "stimulus." Western meteorologists and governments simply shrugged off Hurricane Catarina as an interesting little phenomenon of no great concern.

Some time after their 1989 lease of the Russian interferometers, the Yakuza carried the science and technology of scalar electromagnetics (energetics) back to Japan. There they set up their own clandestine facilities to manufacture such weapons, including small portable scalar interferometers, electromagnetic pulse (EMP) weapons, and even negative energy EMP weapons. Any group or nation possessing scalar interferometers is also able to produce either positive energy EMP or negative energy EMP in the distant interference zone. Smaller, more portable weapons then follow.

Selected portable weapons of such types will be inserted — probably have already been inserted — into the U.S. for destroying its key internal targets and centralized electrical power system. With the final coup de grace to be delivered about two years from now, the loss of our national electrical power system is intended to evoke the catastrophic collapse of the entire U.S. economy, followed by the fall of other Western nations' economies like toppling dominoes.

Despite the risk, the U.S. Government, scientific community, intelligence community, and electrical power industry seem totally incapable of confronting the desperate requirement to replace our entire centralized electrical power system with fuel-free self-powering "energy from the vacuum" (EFTV) systems as rapidly as possible. Merely mentioning the requirement evokes psychological displacement activity, denial, and fierce personal attacks on the proponent. It also induces strong opposition from the powerful cartels in our society — energy, science, government, the environmental community, the financial and industrial community, etc. Hence the U.S. continues "energy business as usual", while the clock ticks away to our destruction {xviii}.

#### Our Desperate Need to Correct the Seriously Flawed Classical Electromagnetics (CEM) and Electrical Engineering (EE) Models

In the past we have described the longitudinal electromagnetic (EM) wave transmitters used in these interferometer weapons with the phrases "scalar electromagnetics" and "scalar interferometry" {xiv}. Tesla did not originate these

terms, nor did he originate scalar interferometry, although he had indeed stumbled onto longitudinal EM waves and what can only be called force-free precursors engineering {xix}. Quoting Tesla {xx}:

"...I showed that the universal medium is a gaseous body in which only longitudinal pulses can be propagated, involving alternating compressions and expansions similar to those produced by sound waves in the air. Thus, a wireless transmitter does not emit Hertz waves which are a myth, but sound waves in the ether, behaving in every respect like those in the air, except that, owing to the great elastic force and extremely small density of the medium, their speed is that of light."

If "gaseous body" is replaced with the modern term "virtual particle flux (active virtual state gas) of the vacuum", Tesla's words agree with the basic view of the modern active vacuum.

Whittaker's 1903-4 discovery that sets of longitudinal EM waves actually comprise all normal EM waves, fields and potentials {xxi,xxii} leads to a much more fundamental electrodynamics in which ordinary EM waves, potentials, and fields can undergo sophisticated alteration, enabling them to contain hidden internal field vectors and dynamics. ("Dynamics" refers to change over time.)

Indeed, the so-called "transverse EM waves" measured by our instruments are merely precession wave envelopes of charged particles (charged masses) responding gyroscopically at right angles to the more fundamental longitudinal EM waves. Longitudinal waves are force-free except when interacting with matter.

Transverse EM force field and force field waves exist only in association with charged matter, never in free space. What exist in space as the "precursor field" are the Whittaker sets of bidirectional longitudinal EM wave pairs, for each force field wave, force field, or potential in charged matter when the precursor wave-sets are interacting with that charged matter. What Whittaker showed as the "decomposition" of such waves is actually the precursor longitudinal force-free EM wave mixture existing in charge-free space, whose summation — via the wave interaction with charged matter — yields transverse force field waves. An EM wave in space (i.e. where no matter is present) actually consists of a dense, multi-frequency mixture of bidirectional longitudinal EM wave pairs. It is not a "pale thin shadow" of the form of the matter wave in charged matter.

Every EM "field" and "wave" and "potential" in space — including so-called "static" fields and potentials — actually exists as a large ensemble of ongoing EM energy flows in the form of those propagating longitudinal EM wave sets. But our standard classical EM and electrical engineering model's false assumption of a material ether has prevented recognition of the fundamental character of these longitudinal EM wave ensembles. The model continues to erroneously assume forces and force fields in space. Yet forces and force fields cannot occur in space but only in mass, because one of the components of force is mass, by the definition  $F = dp/dt = d/dt(mv)$ . Simply replace  $m$  by 0, and  $F = 0$ .

When electrons are in a conductor, their travel is limited to a few inches per second down the wire in a typical nominal case. Thus, when an electron in a wire experiences a longitudinal EMF, it has to precess laterally. Most of its motion is perpendicular to the wire. This rotational movement is what generates the transverse EM waves that our instruments measure, as the electrons respond to the more fundamental longitudinal vibrations. At least Jackson {xxiii} clearly states what CEM/EE assumes:

"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field."

So the measured EM transverse force  $F$  is the effect of a more primal, precursor, force-free EM field (longitudinal precursor waves) in space, in and on charges  $q$  in the ongoing interaction of that precursor EM field with those charges  $q$ . To see this, examine the simple equation  $F = Eq$ , as a definition  $F = Eq$ . In the absence of charged matter,  $q = 0$  and  $F = 0$ , but  $E$ , defined as the mass-free wave in mass-free space, need not be zero. It is a force-free precursor field wave set in space with no charges present. Further, for a given  $q \neq 0$ , if  $E = 0$  and thus precursor field interactions are absent, then  $F = 0$ , but  $q \neq 0$ . For that reason, as Jackson admits, the observable  $E$ -force (i.e., in charged matter  $q$ ) has to involve the product of charge and field. But the notion — almost universally assumed by universities teaching CEM/EE — that a force field somehow exists in mass-free space, Jackson admits, is totally false.

The energy flux of the vacuum is enormously dense and comprises the scalar potential of Einstein's spacetime itself. This energy decomposes into Whittaker harmonic sets of bidirectional EM longitudinal phase conjugate wave pairs {xxi}.

It is an axiom that any mathematical model, including this one, can be engineered by a model of sufficiently higher group symmetry. The mathematics generally used to model Western classical force-field electrodynamics is  $U(1)$ , a lower group symmetry model. Thus, CEM/EE can be engineered using a more sophisticated mathematical model, as the preceding discussion of precursor fields pointed out.

Our scientists, engineers, and thermodynamicists have also largely failed to grasp the implications of the gauge freedom axiom when asymmetrical rather than symmetrical regauging is used. The first requirement for EFTV systems producing more energy output than the operator alone inputs is to break Lorentz symmetry in the system's circuitry and thus to violate the Lorentz invariance imposed by the  $U(1)$  theoretical equations by which CEM is presently modeled.<sup>1</sup> Further, when

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<sup>1</sup>See Maxim Pospelov and Michael Romalis, "Lorentz Invariance on Trial," *Physics Today*, 57(7), July 2004, p. 40-46 for a good discussion of present efforts to violate invariance and Lorentz symmetry.

one deals with force-free EM fields, potentials, and waves as they exist in mass-free space, a priori one does not have to "pay" to furnish the energy flows that are necessary to develop powerful working forces in matter. Instead, one only has to deliberately direct nature's own energy flows, exhibited by the internal Whittaker decomposition of any static EM potential, field, or wave in space; the energy is already pouring freely from every charge.

Force is an ongoing effect of a more primary ongoing precursor interaction between dynamic spacetime (and dynamic virtual particle flux or VPF of the vacuum) with mass. Force is not a fundamental cause. Every EM field or potential in space is in fact already a great set of ongoing free EM energy flows, steadily flowing from the associated source charge(s). Any "energy" being lost to provide that set of energy flows is furnished by the reordering of disordered virtual energy absorbed by the source charge from the seething vacuum. Since the totally-disordered vacuum is already at maximum entropy state, at equilibrium, any change in that state is a negative entropy change a priori. Using such thus involves negative entropy engineering. (The terms "precursor engineering" and "negative entropy engineering" are essentially synonyms.)

Thus precursor engineering advances beyond the present notion of four primary forces of nature. Instead of four primary forces, precursor engineering deals with four "brands" of precursor wave sets and energy flows, each kind interacting with a particular kind of mass to produce one particular kind of "fundamental force". The Whittaker decomposition for an EM force field in matter actually gives the energy flow set, which is the form of the actual precursor EM energy field in space. Envelope summation never occurs until the precursor energy interacts with charged matter.

In theory, by asymmetrically directing these Whittaker precursor energy flows, one can generate forces of any strength and pattern in charged matter. One can even shape the internal dynamics (to be explained later) of such forces. We refer to forces created in this manner as "engines". The energy for creating these engines is present in nature; one only needs to furnish switching and control. By paying a small energy "cost," one can direct and structure the desired patterning and dynamics of large precursor flows of energy in space. The interaction of these "precursor engines" with charged matter can produce very powerful forces in charged matter.

In hard military terms, precursor engineering (that is, Soviet energetics) provides an enormous and ubiquitous force amplifier that may be put to startling use on the battlefield.

Very large energy effects in physical matter can thus be obtained for only a small investment in switching and control of nature's ubiquitous free energy flows. Conservation of energy is not violated, since the charges furnish the excess energy utilized, in their continuing extraction of real EM energy flow from the vacuum's

fluctuations.<sup>2</sup> Thermodynamics is not violated, because these precursor energy flows are nonequilibrium steady state systems, with continuous free energy input from the vacuum's subquantal fluctuations and with continuous free energy output in the form of the precursor energy flows.

This is negative entropy engineering, the ultimate "far from equilibrium" approach that totally violates the present flawed Second Law of thermodynamics {xxiv}.

Observable forces and force fields do not exist in empty space. They exist only in matter, because matter is a necessary component of force. Subquantal energies fluctuating in the vacuum of space are not observable until they produce state changes in matter. Our fundamental mechanics greatly errs in assuming a separate vector force in mass-free space, acting upon a separate mass. No such "separate force in mass-free space" exists, and none can exist, since mass is a component of force by  $F = d/dt(mv)$ . If  $m = 0$ , then  $F = 0$ . When there is no mass, there is no force. As Nobelist Feynman stated: "Everything we know is only some kind of approximation, therefore, things must be learned only to be unlearned again or, more likely, corrected."

Speaking specifically about force, Feynman stated {xxv}: "...in dealing with force the tacit assumption is always made that the force is equal to zero unless some physical body is present... One of the most important characteristics of force is that it has a material origin..." "If you insist on a precise definition of force, you will never get it!"

But then, facing Feynman's dilemma of defining a force, what kind of electromagnetics exists in force-free space, prior to the presence of mass and thus prior to the formation of forces and force fields assumed by the present CEM/EE? Speaking of the electric field from a source positive charge in space, and the responses of charged masses placed in that field and interacting with it, Feynman stated {xxvi}:

"...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force is called an electric field."

Feynman also pointed out that we really did not know what "energy" was. In the particle physics view of energetics, what basically exists in mass-free spacetime is the disintegrated and disordered virtual particle flux (VPF) of the vacuum. Energy in said space means an ordered change in that VPF. In the general relativity view of energetics, the basic space is "spacetime" which now must be considered highly structured and highly dynamic. Energy in said spacetime is a change or distortion in its curvature.

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<sup>2</sup> In this book we give the exact mechanism by which the charge does this.



All of the so-called "energy in space" - such as a field or a potential - may be thought of as an organized change of the virtual state energy and curvature of spacetime. The "enormous" vacuum energy (using the term "enormous" as if the energy were already coherently integrated) is actually disintegrated into very tiny virtual bits of energy and ordered patterns in that energy. The energetic vacuum consists of intense and dense subquantal fluctuations! An EM field, potential, or wave in vacuum (i.e. in empty space) is actually an organization (ordering) and dynamics imposed upon and in the basic disordered VPF and virtual energy. The fundamental field or potential is thus an "organizing pattern" of ongoing energy flows, and must already include negative entropy, since it reorders the disordered virtual energy of the vacuum a priori {xxvii}.

Any persisting pattern (organization) of EM change in a region of the VPF — once it interacts with observable charged matter — can be and is integrated to the quantum level so that it becomes observable EM change and produces force and force fields in the charged matter with which it interacts.

There is no observable force a priori until a pattern of virtual change in a region of the vacuum (a vacuum engine or precursor engine) is reacting with observable matter and being integrated to observable quantum level in that interaction. We have explained that integration process elsewhere {xxvii, xxviii} as demonstrated by every charge in the universe.

If charges did not reorder and integrate disordered virtual state energy changes to observable state energy changes, there could not be any observable EM forces in nature, or any observable masses in nature.

### How the Notion of Transverse EM Waves in Space Originated

To explain sets of longitudinal EM waves in the vacuum, and also to explain then detection as transverse waves in a receiving conductor {xxix}, consider the longitudinal flow of Drude electrons in a conductor, which is known to be severely restrained. While the electrons in the Drude gas may individually move at greater velocity, their net flow longitudinally down the conductor is the drift velocity {xxx}, usually on the order of a few centimeters per second in a typical bench circuit with small voltages and currents {xxxi}, very much less than the speed of the field or potential down the wire. Hence there exists an effective restraint of the electron's spinning gyro axes in the longitudinal or current-flow direction along the conductor.

To a first order, when the precursor longitudinal EM force impinges upon them, the Drude electrons — due to their continuous spin — act as gyros with longitudinally restrained axes. They occasionally slip a bit longitudinally, but are immensely freer to move transversely. So they easily precess with lateral motions that can be very large and/or very fast indeed.

The intense lateral precession of the "Drude electron as a gyro" quite well demonstrates the overall longitudinal nature of the causative disturbing precursor

agent(s), with the longitudinal impulse force strongly resisted by the longitudinal restraint force, and with most of the electron's effect force being the resulting gyro-electron precession force at right angles.

Even when electrons are in empty space and not in a conductor, their mass inertia and spin results in a similar much larger precession at right angles to the longitudinal disturbing forces of the precursor force-free fields and waves.

The observation of the lateral electron precession waves of these precessing Drude electrons in our instruments is the accepted measurement of the so-called transverse EM waves in vacuum. The measurement does not measure the oscillation direction of the causative precursor EM wave in vacuum at all, but only its oscillation effect created in the precessing Drude electrons of the charged matter. There are really no transverse EM waves in mass-free space, albeit we seem to be stuck with such a model since the founders of classical electrodynamics assumed the material ether filling all space, which they modeled as matter waves (force field waves) in space.

If there were such a material ether, then there would be matter and charge at every point in space, and there would indeed be transverse charge precession EM waves in this "ethereal but real matter" filling all space. The CEM/EE model of electrodynamics and its equations have implicitly propagated the erroneous assumption of a material ether and the misinterpretation of what our instruments are measuring, from at least 1865 to the present day. Yet the material ether was falsified over a century ago, in 1887. The false assumption of the material ether and the resulting false assumption of the transverse EM force field wave in space continues even after Drude's fundamental work —just as the erroneous notion of a separate force vector in space acting separately upon a mass is still propagated in basic mechanics.

It is astounding that the NAS, NSF, NAE, DoE, national labs, and universities blithely continue to propagate such known errors in major models, even after eminent scientists such as Wheeler, Feynman, and many others have pointed out that there are no forces or force fields in space.

We know of no other Western analyst who has pointed out the lateral precession of Drude electrons resulting from their longitudinal restraint to a slow drift velocity. This phenomenon appears to prove that the EM wave sets in matter-free space are longitudinal rather than transverse, precisely as Tesla stated.

We pointed out this anomaly in the erroneous "force in empty space" theory for years, to little avail. The Soviets not only discovered it but also highly weaponized it shortly after WWII, in their secret superweapons science called "energetics".

#### CEM and EE Still Erroneously Assume the Old Material Ether

The misinterpretation of the detected transverse EM force field waves as actual force-field waves in a material space has been perpetuated erroneously since the inception of classical electrodynamics, and it continues today. The entire U.S.

scientific apparatus — including the National Academy of Science, National Science Foundation, National Academy of Engineering, Department of Energy, national laboratories, and universities — continues to bury its head firmly in the sand, covering itself with the old luminiferous material ether.

Because of its importance, we reiterate that those measured waves in our measuring instruments actually are integrated transverse EM force field effect waves in and of the interacting Drude electron material medium in the conductors of the intercepting instrument. But the causative interacting EM field entities in the vacuum are themselves force-free longitudinal EM wave set disturbances of the curvature of spacetime (general relativity view) and of the local VPF of the vacuum (particle physics view). Else the theory of gyro precession is voided by every Drude electron and transverse EM force field wave detection in Drude electron gases.

The EM force fields so blithely assumed by our present electrodynamics absolutely do not and cannot exist in mass-free space, since force only exists in a mass system, and then only during its interaction with force-free precursor fields. Because of charged particle spin, the elemental responses of the charged mass system are precessions at right angles to the disturbing force-free fields. Neither do transverse EM "effect" waves exist in mass-free space, but only in charged mass systems (such as the Drude electron gas) engaged in an ongoing interaction with the longitudinal precursor waves. Here also, the elemental response of the mass system is at right angles to the force-free fields of the disturbing precursor wave set.

The primary, longitudinal force-free fields in massless space are the more fundamental EM fields, as Tesla had realized. Tesla actually began the process later partially captured by Whittaker {xxi, xxii}, which was taken to fruition after WW II by Soviet weapon scientists as the new weapons science of energetics. It is what the present author is calling precursor waves, precursor fields, and precursor engineering, in trying to penetrate the mind-fog barrier generated by the "transverse EM forcefield wave in space" idea so branded into scientific and engineering minds.

#### Our Archaic and Flawed Situation in CEM/EE Today

Sadly, electrical engineering departments still erroneously teach EM force fields and EM transverse EM force field waves in space — a notion which still assumes the old luminiferous material ether {xxxii} that was falsified in 1887 by the Michelson-Morley experiments {xxxiii}.

Reiterating: Jackson, one of the superb electrodynamicists of our day, at least admits that the problem exists and that electrodynamicists continue to ignore it. He states {xxxiv}:

"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that

physically measurable quantities such as force somehow involve the product of charge and field."

In summary, one does not have electromagnetic force until the "force-free precursor field in space" is interacting with charged mass. It can easily be seen by examining the simple standard EM equation  $F = Eq$ , and writing it as  $F = Eq$  so that it becomes a true definition of the electromagnetic force field. Now let  $q = 0$ , as it would be in space. In that case,  $F = 0$ , even though  $E \neq 0$ . In that identity, the actual E-field in space is force free, and force is the ongoing interaction — of the force-free E-field in space — with charged mass  $q$ . Given  $q$  and its interaction with force-free  $E$ , that ongoing interaction is the rigorous definition of — and generatrix for — electric field force itself. What is missing from the identity and therefore the definition is that  $F$  and  $E$  are at right angles to each other because of the spin of the charged particles comprising  $q$ .

Again, let  $q = 0$ , while  $E$  remains nonzero. In that case, there is no ongoing interaction of  $E$  with charged matter, since there is no charged matter. Therefore the effect of such a reaction — force  $F$  — goes to zero because there is no interaction and therefore there is no effect of an interaction. So the equation should really be written as an identity, to show clearly that electric field force is produced by, and exists as, an ongoing interaction of the force-free E-field in space with charged matter  $q$ .

The very concept of "electromagnetic field" must therefore be separated into two parts. Using "the E-field" as an example,  $E_M$  refers to the E-field interacting with mass, and  $E_S$  to the E-field in empty space. Using this notation we might state that  $E_M = f(E_S \times q)$ . In short, if there is any chance for misunderstanding, the writer/lecturer should clearly explain whether he is referring to the force-free E-field  $E_S$  in space, or to the force E-field  $E_M$  in matter. Indeed, the CEM/EE model itself should be altered to clearly show that difference.

The sharp-eyed reader will note that we may have (hopefully successfully!) indicated the solution to Feynman's force definition problem, at least electromagnetically: An electromagnetic force in static charged matter is identically the ongoing effect (in the static charged matter) of an ongoing interaction of the force-free EM field in space with that static charged matter.

Eminent scientists such as Feynman, Wheeler, Lindsay, Margenau, Bunge, and many others have pointed out that there are no force fields in space. But our electrical engineering departments and classical Maxwell-Heaviside electrodynamicists refuse to change and correct the horribly flawed CEM/EE model. Repeating for emphasis, Feynman {xxvi} stated it this way:

"...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force is called an electric field."

In other words, a true  $E_S$ -field is a "force-free condition in pure mass-free space;" it has only the capability to interact with a charged mass and thus create force in that ongoing interaction. Feynman understood that "true fields" were naught but conditions in space itself, and changes in space itself. He clearly understood that only the interaction of the field-in-space with charged mass - should some be introduced — produces EM force fields in that charged mass.

So our present electrical engineers have absolutely no notion at all of what a force-free EM field in mass-free space really is. They have never even calculated a real EM-field in space, and they do not do so today — nor do their professors and their textbooks, though all profess to do so.

One is reminded of Tesla's acrid remark<sup>3</sup> when he stated:

"The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history."

Tesla also was well aware that energy could be had from space, for the taking, and he was at some pains to express it. In 1900 he stated:

"Whatever our resources of primary energy may be in the future, we must, to be rational, obtain it without consumption of any material."

Nearly a decade earlier, he had formally<sup>4</sup> stated:

"Ere many generations pass, our machinery will be driven by a power obtainable at any point in the universe. This idea is not novel... We find it in the delightful myth of Antheus, who derives power from the earth; we find it among the subtle speculations of one of your splendid mathematicians...Throughout space there is energy. Is this energy static or kinetic? If static our hopes are in vain; if kinetic — and this we know it is, for certain — then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature."

Tesla himself was stopped from doing that very thing, by powerful vested interests who realized that for the financial cartels involved in energy, energy must continue to come from fuels and materials, etc. Today, similar cartels of very great power still control which way science thinks and researches, and still effectively destroy any scientist who dares to seek energy from the vacuum, and Tesla's nonmaterial energy source "obtainable at any point in the universe".

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<sup>3</sup> Nikola Tesla, "The True Wireless." *Electrical Experimenter*. May 1919.

<sup>4</sup> Nikola Tesla, in a speech in New York to the American Institute of Electrical Engineers, 1891.

The primary factor responsible for successfully suppressing most attempts to scientifically research EFTV is the scientific community's continuing insistence on the absurd notion of force fields in space.

#### Other Severe Foundations Errors in Our CEM/EE

Indeed, besides the material ether (falsified over a century ago), the inane CEM/EE model still erroneously assumes a flat spacetime (falsified since at least 1916) and an inert vacuum (falsified since at least 1930). It also assumes that every EM field, potential, and joule of energy in the universe was freely created from nothing at all by the associated source charge, which the theory begrudgingly admits continuously emits real observable EM energy without any energy input. In so doing, the CEM/EE model implicitly assumes the universal violation of the conservation of energy law.

Every EE department, professor, and textbook in the United States unwittingly advocates the total violation of energy conservation, without even recognizing it. So do our National Academy of Sciences, National Academy of Engineering, National Science Foundation, Department of Energy, great national laboratories, universities, our intelligence analysts — and the entire Taliban-like professional Skeptic community — by not pointing out the known terrible errors in classical electrodynamics and electrical engineering, and by not correcting the flawed model!

The concerned reader should make a determined effort to find any single textbook that presents and lists the foundations assumptions in the CEM/EE model, and discusses which are still true and which have been falsified by the progress of modern physics. The reader will not find any such textbook, nor will he find any project to correct the textbooks, in any of the previously named scientific groups and organizations.

#### The Development of Scalar Interferometry

There are two papers by E. T. Whittaker, one in 1903 {xxi} and the other in 1904 {xxii}, that detail the beginning of scalar interferometry. Shortly after WW II, these two papers were a starting point in the Soviet Union scientists' development of a secret weapons science called energetics, which led to the development of powerful scalar interferometers that are now possessed secretly by at least 10 nations worldwide, and even by the Japanese Yakuza. For a deeper understanding of scalar interferometry, a higher group symmetry electrodynamics must be used {xiv}, instead of the Standard Model's limited U(1) electrodynamics.

After leasing large strategic scalar interferometers in Russia, the Yakuza took the technology back to Japan and set up production facilities of their own. This was not an act of the Japanese government but of the Japanese Mafia in concert with a remnant of the Aum Shinrikyo (under its new name, Aleph). The Yakuza is very powerful, and it penetrates the Japanese government and also every large Japanese

company. All dealings with any large Japanese company inherently involve the Yakuza, due to their penetration into all aspects of Japanese society and business.

In 1997, then Secretary of Defense William Cohen— at a conference on Weapons of Mass Destruction (WMD), held in Georgia under the auspices of Senator Sam Nunn — publicly confirmed this kind of electromagnetic weaponry without the technical details. He also confirmed the weather engineering, climate control, induction of earthquakes, and stimulation of volcanoes into eruption. Secretary Cohen stated {xxxv}:

"Others [terrorists] are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic wave. ... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations. It's real, and that's the reason why we have to intensify our efforts, and that's why this is so important."

This was the first time (and to my knowledge, the only time) a high U.S. government official has openly confirmed the superweapons. So obviously certain parts of our government do know about such weapons, but there has been little or no communication of that to the public, save by Secretary Cohen's illuminating statement.

The news media at the time — panting heavily after the juicy Clinton-Lewinsky sex scandal — totally ignored Cohen's epochal strategic statement. So much for the perspicacity of our news media!

### The Yakuza Strategic Role in Our Present Terrorism Threat

Today the Yakuza/Aum Shinrikyo, one of our deadly foes, will be involved in the planned destruction of the United States that is scheduled to conclude about three years from now. A major facet of the plan is the destruction of the power grid in about two year's time. The incidents will start very gradually at first<sup>5</sup>, and then escalate fairly rapidly until the power system is in ruins. There are already sufficient terrorist assets inserted into the U.S. — being held ready and waiting - to destroy the nation, particularly when one considers the damage potential of scalar interferometers. A single large interferometer can, for example, disable the entire power system and keep it nonfunctional by causing power surges at will. It can destroy power plants, grids, distribution stations, refineries, etc. Or it can keep the system failing and nonfunctional by damaging or destroying electronic controls.

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<sup>5</sup> The 2004 hurricane passing through the Gulf of Mexico did substantial damage to the oil and gas pipelines and some of the oil rigs. That decreased our daily supply of oil and gas, was been partly responsible for oil prices going above \$50 per barrel, and still plays a role in their continuing to rise.

One keeps hoping that the Administration - whether Republican or Democratic - will alert the American public to this possibility, but nothing has been said by officials of either party. Too many high level government people take the attitude that the American public just could not withstand such information. Further, within the government the entourage {xxxvi} seems to have again largely suppressed the information that Defense Secretary Cohen knew and publicly confirmed.

The Yakuza strategic threat to the U.S. is one of the most potent we face today, and it increases year by year. That threat — as is much of the organized international terrorist threat — is being generally coordinated from the old die-hard Communist faction of the FSB/KGB. The Yakuza strategic threat is also being generally ignored by our intelligence analysts, yet the Yakuza are proteges of the same dominant FSB/KGB faction, the one which possesses, controls, and utilizes the Russian energetics superweapons, never having allowed them to pass into the regular Russian armed forces. Thereby the communist faction retains power and will do so.

President Vladimir Putin, from the younger faction of the KGB, would like to reach an accommodation with the U.S. However, the Russian communist faction, which remains dominant, prohibits him from doing so. Accordingly, Putin has been forced to reinstitute harsher state control measures and take control of domestic oilfields from private industry. Instead of becoming the "trusted cheap oil supplier" to the United States as Putin wished, Russia has allowed China to invest in developing Russian oil fields. This appears to be part of the new alliance among Russia, China, and India.

### Suppression of "Energy-from-the-Vacuum" Electrical Systems

Electrical power systems freely taking their energy from the vacuum rather than from fuel are suppressed worldwide by several large and powerful cartels — including in the U.S. scientific community — and for some time the Yakuza has suppressed all EFTV systems successfully developed in Japan.

As part of their scheduled plan to catastrophically collapse the U.S. economy by obliterating our power supply, the Yakuza have suppressed several of these legitimate Japanese overunity electrical power systems — such as the Takahashi magnetic Wankel engine {xxxvii} and the Kawai motor {xxxviii} — to prevent them from being marketed.

Were these already-developed Japanese systems allowed on the market, they would quickly resolve the world energy crisis, and enable the dismantling and rapid replacement of the horridly vulnerable, centralized U.S. electrical power system. Needless to say, the availability of such systems would cleanse the biospheric contamination from energy-related operations and developments, alleviate the march toward global warming, etc.



All the field energy and potential energy used in every EM circuit already comes directly from the vacuum, and not from cranking a generator shaft or dissipating chemical energy in a battery. The energy is extracted from the vacuum itself by the system's source charges and dipolarities. And yet our own scientific community perpetuates a model assuming that the field energy from the charges - and therefore the available usable energy in the circuit — is freely created out of nothing at all, while also erroneously teaching that it is the mechanical power turning the generator shaft which powers the electric distribution line and distant loads.

We do not have to rediscover how to extract usable EM energy from the seething vacuum! Every charge in the universe already continuously does that, and it continuously gushes forth real EM energy extracted from its ongoing "ratcheting" vacuum interaction. All we have to do is learn how to properly intercept, extract, and use the already-real energy flows from source charges and dipoles. This has to be done by uncovering and eliminating the limitations unwittingly incorporated into the CEM/EE model — such as the ubiquitous closed current loop circuit containing the source dipolarity (the source of potential wired into the external circuit as a load to be continually destroyed — and such as insisting on invariance and Lorentz symmetry of the model because of the "mathematical beauty" in symmetrized equations and an invariant system. "Invariance" refers to the notion that no new net observable is permitted when the equations are regauged. To do that requires symmetrical regauging, which kills any modeling of asymmetrical receipt of excess energy from the active environment. The Lorentz symmetry of our inane electrical power circuits thus guarantees that the much simpler Lorentz-invariant equations can be used to describe the deliberately crippled system's operation. It also guarantees that the system will not electrically perform with a coefficient of performance (COP)  $> 1.0$ .

The scientific and industrial and financial entourages love it, and will do whatever is required — destroy careers, withhold funds and tenure, or even kill the researchers — to keep that status quo. Hence it is not accidental that, in a world filled with an uncountable number of free energy generators called "source charges", our vaunted scientific community still opposes energy from the vacuum systems and will not fund or allow research on them. Their position is the ultimate irony, because all of the energy driving every EM system ever built has been extracted from the seething subquantal fluctuations of the vacuum!

On the other hand, by deliberately avoiding the Lorentz-invariant equations, one can violate the Lorentz symmetry, resulting in asymmetrical circuits and systems that collect excess energy (i.e., asymmetrally regauge themselves) from the active vacuum's interaction with all the circuit's charges. Asymmetrical regauging freely produces a net nonzero force field. A properly designed circuit can utilize this force field to dissipate the previously-collected "free potential energy" in external loads to power them almost "for free" (as far as any cost to the operator for the energy dissipated). No law of physics is violated, and no valid law of

thermodynamics is violated (once the erroneous Second Law is corrected, and is no longer the oxymoron and "half law" it presently is).

Sometimes simple equations contain profound truths. Because a potential (envelope) is actually a set of ongoing EM energy flows, then from any fixed source of potential  $V$ , any amount of energy  $W$  can be freely collected on intercepting charges  $q$ , given sufficient  $q$  and also  $dq/dt = 0$ . The simple equation is  $W = Vq$ . Further, by only increasing  $V$ , while pinning a fixed amount of intercepting charges  $q$  so that  $i = dq/dt = 0$ , any amount of potential energy density  $V$  can be freely produced in the system by work-free voltage amplification alone. Regauging is changing the potential(s), nothing else.

From such simple equations, one can see that a circuit can self-regauge and take on extra potential energy freely, from any external source of potential energy providing the necessary potential energy flow, without having to do work — so long as the source of potential is not deliberately destroyed. This is done in a two-phase process. In the first phase,  $dq/dt$  is made to equal 0 by pinning the charges  $q$  to prevent current flow. In this phase the pinned charges are freely potentialized. One can potentialize as many charges as desired without draining the external source of potential, because the source's dipolarity is not reduced. In the second phase, the source of potential is disconnected, the circuit is re-closed and the charges  $q$  are unpinned. Now the circuit freely dissipates the previously-collected energy to power loads "for free". The circuit can perform this two-phase process repetitively and continuously because  $dq/dt = 0$  during the potentialization process.

In short, the external source of "static" potential will last indefinitely, so long as current is not forcibly pushed up through its dipolarity's back emf. Via a flashlight battery or electret as the "external potential source," under proper circumstances sufficient energy could be extracted from the vacuum to power New York City, at least in theory.

We do not have to learn how to extract energy from the vacuum. We only have to learn how to more properly use the energy freely flowing from charges already doing so, and build and use circuits that do not keep killing the source of potential energy flow faster than they power their external loads. The energy we input to the shaft of the generator is to continually restore the destroyed dipolarity, that we intentionally build our "external systems" to do, faster than they power the external loads. We pay the power company to engage in a giant wrestling match inside its generators and lose.

Our classical electrodynamicists and electrical engineers have missed the fact that, since every EM field and potential is a pattern in the continuous flow of EM energy from the associated source charges, the field or potential is itself a set of continuous free EM energy flows. To see it and prove it, simply decompose the field or potential by Whittaker's methods {xxi,xxii}.

Members of our company, CTEC, personally witnessed the Yakuza suppression of Japanese EFTV electrical systems during our negotiations for rights to market Kawai's self-powering Kawai motor right here in Huntsville, Alabama in 1996. The board directors and the author, as chief executive office, had reached agreement with Kawai late one Thursday afternoon. The Yakuza arrived by private jet from Los Angeles that night. The next morning, a stunned and totally demolished Kawai no longer controlled his invention, his company, his life, or further developments. If not for the Yakuza's intervention, CTEC would have placed self-powering Kawai motors on the world market by mid-1997.

Such self-powering electrical systems are no more mysterious than windmill powered generators or solar cell array power systems. In each case, the active vacuum environment furnishes all of the energy required. Even though any system has losses and its overall thermodynamic efficiency cannot exceed 100%, the coefficient of performance can equal infinity when the external active environment, not the operator, is the source of all of the energy collected.

Energy-from-the-vacuum systems to replace our centralized electrical power grid would take nearly-free energy directly from the local vacuum, needing no external fuel, pipelines, fleets of tankers, railroad coal cars, refineries, etc. Most of the massive and expensive support structure for our bloated centralized electrical power system would gradually be dismantled as it was replaced by a decentralized EFTV system. Our present dependence on foreign oil and gas would vanish forever, accompanied by a dramatic reduction in environmental pollution and a dramatic uplift to the economy.

The U.S. electrical power system would no longer be remarkably vulnerable. Replacement of most of the centralized power system would be of enormous economic benefit and of enormous strategic importance. Presently, we have some two years to get a substantial percentage of that task done, in precisely that manner. Otherwise, we will see the centralized electrical power system destroyed, followed shortly thereafter by the catastrophic collapse of the U.S. economy. And then will immediately follow the methodical destruction of the United States - every last man, woman, and child. At least those are the plans of the enemy waging the asymmetrical war against us, and soon to spring up and proceed internally inside the United States.

The resulting benefits of such a centralized, fuel-free system to the taxpayer and to the long suffering destitute peoples of the world would be incalculable — but the incredible loss of revenue to the large energy cartels now in power worldwide would be directly calculable! Such powerful organizations do not surrender their vast empires and dominant positions without a major struggle.

So certain elements of those cartels already suppress "free energy" developments worldwide, and they have been doing so since Stubblefield {xxxix} (even before Tesla). Those who engage in energy from the vacuum research, if successful, can easily "meet with a sudden suicide" on the way to the supermarket, unless they exercise exceeding care. Or one can be hit in the midst of a crowd by an ice dart

dipped in curare, to that one convulses and dies right there with a "seizure" and massive heart and brain damage.

Or heroin can be planted on the premises secretly by an intruder. Then the regular narcotics police are "tipped off. They raid the place, the dogs sniff out the large cache of heroin, and one has "been caught red-handed" as a dirty old dope dealer. One winds up behind bars for 20 years or so, wondering how it all happened.

Or one encounters a "throw-away" assassin, who has been brutally conditioned. After he successfully fixates on his target, then later he will march right up to the targeted individual in a public restaurant, pull out a pistol and empty it at point blank range into the target, killing him. He will remain right there until the police come and haul him away. And even electric shocks on his testicles will not elicit any useful information from him.

Or, more simply, one just meets with a fatal auto accident.

Or one gets hit with a microwave "shooter" whose wavefront has been carefully modified by the Venus ECM (electronic countermeasures) technique, to dramatically disrupt the receiving heart by throwing it into violent and uncontrolled fibrillation. The target falls, goes into convulsions, thrashes a bit, and expires with a legitimate massive stroke, heart attack, or both. The smaller short range shooter is about the size of a small paperback textbook, and fits inside the assassin's coat pocket. A larger longer range shooter is about the size of a bazooka. It will shoot right through walls and windows, killing a person inside the building (after locating the target's body heat through the wall or window with an infrared device).

Or a professional hit man kills the person, making it appear that some hoodlum committing a robbery or some such did the crime. Recently Dr. Gene Mallove, an excellent alternative energy and cold fusion researcher and a highly dedicated scientist, probably was murdered by this latter type of professional hit. It was probably arranged by the entourage of the powerful consortium (both industry and science) planning to rip off the U.S. public for more than a trillion dollars, to build hundreds of pebble bed nuclear reactor power plants. To do that, they need helium, which is in short supply and expensive. But in "cold fusion" there is a nuclear reaction which generates helium {xl}, and it can be developed to do it copiously and cheaply. So the cartel needs to appropriate that reaction from cold fusion, and pretend it is hot fusion, while still keeping cold fusion suppressed. Mallove, the great champion of cold fusion, would have prevented that, and he had the respect and connections to do it. Obviously, Mallove had to go. No one would have believed suicide, so it had to be more mundane. Hence a "lowly burglar" beat him to death.

Those are just a sampling of the many methods — professional clandestine assassination, jailing, suppression — currently used against some EFTV researchers.

Unfortunately, President Bush - with a serious energy crisis approaching and with continuing bum scientific advice from our scientific community - has been persuaded to back that big nuclear power program. So the cartels in industry and science that are grabbing all the research funds for big nuclear power, hot fusion, hydrogen economy, etc. are in fact preventing any appreciable research in the one area that can do the job: energy from the vacuum. Planning and funding the building of big nuclear power plants that will go on line in about 5 to 7 years, to feed a distribution system that will be destroyed two years hence, in a United States that will be destroyed within a year following, simply will not do the job. Instead, it will exacerbate the problem. It will, however, guarantee that when Rome burns it will burn completely. Presently that is the main function of our power industry and our scientific community, who still have no notion of the terrible threat and destruction bearing down on this entire nation.

But to seek out what our own science is doing in EFTV research, simply visit the websites of the National Academy of Science, National Science Foundation, Department of Energy, national labs and universities, and search for any real EFTV research program or solution that would enable our survival in this three year period we have entered. Cut through the rhetoric and hype for any real content that would solve the problem. There is none, and there is not going to be any.

The sites and organizations are still blindly accepting the very seriously flawed electrical power engineering, the material ether, force fields in empty space, flat spacetime, inert vacuum, and other gross scientific errors. The reader will find that "business as usual" and the interests of the powerful scientific cartels — hot fusion, nuclear power plants, fuel cells, etc. — are being pursued, with a little sop to the environmentalists in such things as solar cell array power systems windmill-powered generating systems, etc.

To sum it up: Not only is our scientific community fiddling while Rome prepares to burn, but it is also ensuring that Rome burns completely.

#### Yakuza Production of Portable Scalar Interferometers

The Yakuza now produce their own scalar interferometer weapons in their own facilities in Japan, including small, portable versions. This Yakuza activity has no relationship to the Japanese government. Small versions of these Yakuza weapons which can fit into a small sports utility vehicle (SUV), and undoubtedly some are also already inserted in the U.S., to be used a few times during the next two years against our refineries, nuclear power plants and hydrocarbon-fueled power plants, oil fields and Gulf oil rigs, control systems and substations for the centralized power grid, pipe line hubs, long high voltage distribution lines, etc. In short, the Yakuza can already lay down the U.S. electrical power system, for months at a time or permanently — and it can do it easily, quickly, and at will.

Even normal cyberwar techniques will do it for extended periods, as is well known by cyberwar specialists. For example, quoting from a PBS interview with Joe Weiss {xli}:

Question: "So just put it all in perspective. What's the worst-case power scenario, power we're talking here — power lines, power grid?"

Answer: "Absolute worst? I won't even say absolute, but a very worst case could be loss of power for six months or more."

Question: "Over how big an area?"

Answer: "Big as you want."

Question: "Is that a possibility?"

Answer: "Yes."

Presently we are in the two year "slowly escalating" initial operations phase of the centralized asymmetric warfare plan for the destruction of the United States.

Then, beginning about two years from now, the final operations phase will swiftly occur, and the already damaged entire U.S. centralized electrical power system will be destroyed quickly and rather permanently. The destruction will be by combined attacks, including cyberwar, with a guaranteed destruction furnished by Yakuza tactical and strategic interferometers, portable EMP shooters, etc.

The destruction of the United States, with the aid of the Yakuza, is coordinated by centralized planning under the old die-hard Communist faction of the FSB/KGB, which controls the Russian Federal Security Service and the Russian superweapons. Possession and operation of the Russian superweapons ensures this faction's dominance.

Russian President Vladimir Putin comes from the younger, more modern faction of the FSB/KGB, which would very much like to reach an accommodation and become the United States' trusted cheap oil supplier. This arrangement would benefit every level of the Russian economy as result of pumping in U.S. development and royalty money.

However, supplying copious Russian oil to the United States contradicts the Communist faction's fervent plans to totally destroy the United States. Thus Putin has been stymied to a large extent {xlii}. Instead, Russian oil shipments to China, over land by rail, were stopped, stimulating China into a more aggressive stance in other world oil markets such as the Middle East. Consequently, China bought in to the Russian oil fields, after the largest oil consortium in Russia came under legal attack and direct interference by the State, with the State eventually taking over the oil fields under the guise of a State protege company. Indeed, a new alliance between China, Russia, and India bodes ill for our access to energy and for other things as well.

The old Cold War has not gone away, contrary to popular conception. Instead, it has just been turned into a more sophisticated kind of war, called "asymmetric"

warfare. The same "old dogs" are still calling the shots, like a tired old black and white movie from the 1930s. Hence our asymmetric war problems (i.e., our War on Terrorism and the war of terrorism on us) will continue. As an example, Putin caving in to pressure, again centralized and tightened the control of the Russian government, setting aside the reforms of open election that had been partially implemented {xliii}. In addition, he had to seize the oil fields and assign them to a puppet company controlled by the Russian state.

#### Afghanistan, Iraq, Al Qaida, and Intended Muslim Jihad

The international terrorists are also being subtly and not-so-subtly manipulated, and we will see the anti-American polarization in the MidEast continue and intensify. Many foreign Arab fighters are fighting in Iraq and Afghanistan right now. Their number and organization — and centralized coordination — will continue to increase.

There are still serious nuclear proliferation problems to be faced in North Korea, Iran, and elsewhere. Iran has defiantly announced it is resuming uranium enrichment and nuclear power plant development. Short of a few ineffective sanctions or attacking Iran, it seems that little can be done {xliv}. However, clear signals from Israel emerge that eventually such will not be tolerated, and Israel will strike if necessary.<sup>6</sup> North Korea remains defiant and almost certainly already has a small number of nuclear weapons. Pakistan and India — both nuclear powers — continue a stand-off and are often eyeball to eyeball. With the alliance of India to China and Russia, that "eyeball to eyeball" confrontation could be aggravated at will.

Israel is extremely concerned about the path Iran is taking to achieve a nuclear weapons capability. The Israelis, having purchased several hundred "bunker-busting" bombs from the U.S., at some point may conceivably take out the Iranian nuclear facilities to prevent an unacceptable Iranian nuclear knockout threat against Israel.

The MidEast situation will further heat up, not lessen, over the next two years. It's called bleeding the U.S. dragon — and it is indeed economically bleeding us.

The intent of our foes is also to deliberately bring substantial factions of the Muslim world to a state of Jihad against the United States, necessitating additional commitment of U.S. forces out of country, and increasing the already-pressing

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<sup>6</sup> E.g., see full page ad, by FLAME (Facts and Logic About the Middle East) in U.S. News and World Report. Mar. 28, 2005, p. 69, entitled "The Holocaust: Sixty Years Later: Has the spirit of Auschwitz been revived?" Quoting: "If Iran isn't stopped from acquiring nuclear weapons, there can be little question that, with or without the approval of the United States, Israel would have to preempt and, just as it destroyed the Osirak nuclear plan of Iraq in 1981, would destroy the Iranian nuclear installations — by whatever means it might take."

economic strain on the U.S. Quite simply we have run out of troops necessary to continue our worldwide tasks and missions. Unless a draft is reinstituted, we are also seriously challenging our reserves and National Guard. Any draft imposed is likely to reinitiate an intense polarization inside the U.S. over the war and America's foreign commitments.

Claiming that America had declared war against God and his messenger, Bin Laden has called for the murder of any American, anywhere on earth, as the "individual duty for every Muslim who can do it in any country in which it is possible to do it." {xlv}.

In an American national television interview from Afghanistan, Bin Laden stated his intention to kill innocent civilians as well as military, without hesitation {xlvi}:

"It is far better for anyone to kill a single American soldier than to squander his efforts on other activities... We believe that the worst thieves in the world today and the worst terrorists are the Americans. Nothing could stop you except perhaps retaliation in kind. We do not have to differentiate between military or civilian. As far as we are concerned, they are all targets."

The 9-11 Commission Report summarized the unrelenting attitude as follows {xlvii}:

"Many Americans have wondered, 'Why do 'they' hate us?' Some also ask, 'What can we do to stop these attacks?' ... Bin Laden and al Qaeda have given answers to both these questions. To the first, they say that America had attacked Islam; America is responsible for all conflicts involving Muslims. Thus Americans are blamed when Israelis fight with Palestinians, when Russians fight with Chechens, when Indians fight with Kashmiri Muslims, and when the Philippine government fights ethnic Muslims in its southern islands. America is also held responsible for the governments of Muslim countries, derided by al Qaeda as 'your agents'.... To the second question, what America could do, al Qaeda's answer was that America should abandon the Middle East, convert to Islam, and end the immorality and godlessness of its society and culture. [Al Qaeda states] '... you are the worst civilization witnessed by the history of mankind.' If the United States did not comply, it would be at war with the Islamic nation, a nation that al Qaeda's leaders said 'desires death more than you desire life'."

This perhaps explains the morose statement of Vice President Cheney, only a month or so after 9/11, and after he had received intensive briefings on terrorism and its present conduct against the United States. Cheney stated {xlviii}:

"The war on terrorism will not be over in our lifetime. It is different than the Gulf War was in the sense that it may never end. At least not in our lifetime. The way I think of it is, it's a new normalcy."

Bin Laden also certainly knows the importance economics plays in a war. His original wish for the 9/11 strikes was to hit several nuclear power plants etc., damaging the ability of the centralized grid to furnish power, as well as posing a possible nuclear hazard and risk. He felt he lacked sufficient control to do it, so



opted for highly symbolic targets: the twin towers, the Pentagon, and the White House.

Indeed, after 9/11 Bin Laden stated {xlix}:

"Al Qaeda spent \$500,000 on the [September 11 attacks], while America, in the incident and its aftermath, lost — according to the lowest estimate - more than \$500 billion. Meaning that every dollar of al Qaeda defeated a million dollars, by the permission of Allah!"

He declared his policy is "bleeding America to the point of bankruptcy," and joked about the U.S. "economic deficit... estimated to total more than a trillion dollars." Indeed, our known total obligations are already some \$47 trillion dollars, and climbing.

Welcome to asymmetric warfare, where war is war, peace is war, and there is only perpetual war, including a virulent form of economic warfare augmented by "stretching and bleeding the dragon" and by direct damage of infrastructure.

#### Our Analysts Missed the Yakuza's Key Role and Significant Aspects of the Centrally-Coordinated KGB/FSB Strategic Plan

Our own intelligence agencies do not appear to be aware of the key role played by the Yakuza. Nor are they aware, it seems, that the Communist faction of the KGB/FSB directs the entire asymmetrical warfare against us, so that, rather than isolated incidents, the actions of all the far-flung pieces are coordinated in a strategic plan of increasing intensity and effect. Our intelligence analysts do not appear to realize that we have entered into a 3-year Operations Phase schedule - consisting of a two-year initial "gradual intensification" period and a 1-year "maximum intensity and total destruction" period — to collapse and destroy the United States.

The strategy for the initial two-year period is to "bleed and disorganize the dragon" until it collapses in fatigue and economic chaos. Mind conversions - inserting an additional modified mind in a human, then switching control of the thought and behavior between the individual's normal mind and the implanted mind, thus altering the individual's behavior as desired — will be massively unleashed to guarantee total confusion and disorder. The plan for the third year is to violently attack and dismember the prostrate dragon, swiftly and utterly destroying the United States by totally unleashing the terrorist assets already inserted into the U.S. and waiting.

At present, "bleeding the dragon" is in full progress and being steadily increased as part of the overall strategic plan against us. We are already stretched well past the capability of our regular Armed Forces, and we are inducting many of our Reserves and National Guard forces for repeated tours overseas. We have no national draft, and a bitter societal polarization will occur if the draft is reinstated. Our national debt and expenses are escalating rapidly. Our country is hemorrhaging jobs also, further increasing unemployment and financial duress.

Hurricane and storm damages are being escalated by the increased intensity of the Yakuza weather engineering. The American dollar is propped up only by ever-increasing purchases of U.S. Treasury instruments by foreign nations such as China and Japan, which could change at any time. Several prominent Asian politicians and central bankers have recently made public statements suggesting a coordinated intent to divest dollar-denominated reserve assets and shift reserves to other currencies. An avalanche of covert dollar selling appears to have already begun.

Many destructive natural phenomena can be evoked or augmented by the scalar interferometry weapons possessed by the Yakuza. Such phenomena include volcano eruption, earthquake induction, and weather and climate engineering, as confirmed by Secretary Cohen's epochal 1997 statement. But the achievable phenomena also include tsunamis, freak waves in the open ocean, and rogue waves of numerous kind and occurrence {1}. Quoting Wolfgang Rosenthal of the GKSS Research Centre in Geesthacht, Germany on rogue waves {li}:

"The waves exist in higher numbers than anyone expected... Two large ships sink every week on average. But the cause is never studied to the same detail as an air crash. It simply gets put down to 'bad weather'."

Even super-carrier ships are frequently destroyed by such waves {li}:

"Over the last two decades more than 200 super-carriers — cargo ships over 200m long — have been lost at sea. Eyewitness reports suggest many were sunk by high and violent walls of water that rose up out of calm seas."

That's an average of ten per year. Indeed, a satellite test readily confirmed the occurrence of such previously unsuspected freak giant waves {li}:

"As part of a project called Max Wave — which was set up to test the rumors — two ESA satellites surveyed the oceans. During a three week period they detected 10 giant waves, all of which were over 25m (81 ft) high."

And that was just a one-time survey by only two satellites.

Indeed, during that exact three week period while the Max Wave satellites were seeking out huge rogue waves, two large tourist liners endured terrifying ordeals from such waves but survived. The Breman and the Caledonian Star cruisers had their bridge windows smashed by 30m high waves in the South Atlantic.

It appears that at least 10 to 12 oil tankers are lost each year to giant rogue waves alone. To appreciate total shipping losses from all causes: In a single year— 1981 - 250 ships of 500 tons or greater size were lost and perished {lii}. Many of these were probably sunk by unexpected large rogue waves.

We hardly need point out that a giant oil supertanker on the ocean is also easily destroyed in a single shot by a strategic scalar interferometer. A burst of energy, placed adroitly under the surface by a distant interferometer, can also produce large waves that arise and smash a ship. This also "disguises" the incident as if it were due to anomalous large waves of natural origin.

With U.S. dependence on foreign oil and most of the oil delivery dependent on supertankers, oil continues to climb in price. In the past the U.S. government has opened the Strategic Oil Reserve a bit, to assist two hard-hit companies while they scrambled to reinstate their supply. It has also just recently squeaked through the authority to drill for petroleum in the Arctic National Wildlife Refuge.

It would take very little Yakuza effort to increase the loss of oil tankers, further strangling the U.S. oil supply and dramatically increasing prices. Since the oil supply for all oil-dependent nations comes from known major oil field locations and harbor facilities, deliberate and careful reduction of the tanker fleet and facilities can place extraordinary pressure on oil's availability for several major nations at once.<sup>7</sup>

### Coup de Grace: Strategic Strikes of Great Magnitude

Great "coup de grace" blows have also been prepared by the Yakuza, in order to guarantee the catastrophic collapse of the U.S. economy, followed by the swift destruction of the United States itself. Several of these involve opportunistic volcano eruptions and tsunamis {liii} that can readily be evoked.

As an example, prior to the end of 2004 the Yakuza registered one or more of its large scalar interferometers upon one of the world's largest supervolcanoes — whose calderas lie beneath or near Yellowstone National Park. The symbolic timing so close to the anniversary of the 9/11 attack should not be overlooked. The Yellowstone supervolcano erupts about every 600,000 years, and some 640,000 years have elapsed since its last eruption. Hence — geologically speaking - its next eruption is overdue, and the caldera undoubtedly harbors great pent-up stress. Presently a Yakuza finger is on the trigger of the registered scalar interferometer(s). If that finger pushes the trigger, the interferometer will gradually inject tremendous energy into the Yellowstone supervolcano's stress zone, resulting in a violent eruption. Its previous eruption, about 640,000 years ago, devastated much of North America, including most of the higher life forms.

By deliberately kindling the supervolcano into eruption, most of North America would be devastated, and particularly most of the United States {liv}. The supervolcano could eject more ash, lava, rock, and debris than the entire Grand Canyon can hold. Additional side effects would include the instant destruction of most of the agricultural food crops in North America by covering the farmland with thick ash a meter or more in thickness. Survivors would be faced with the immediate problems of starvation and fatal lung disease (Marie's disease), the degree of lung disease varying with exposure to silicon particles of different sizes. Food animals would also be killed in the same catastrophe.

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<sup>7</sup> In 2004 a Yakuza-generated and Yakuza-steered hurricane passing through the Gulf of Mexico also was accompanied by just such freak waves, which were responsible for much more damage being done to the Gulf oil rigs and pipelines than initially thought. Pipelines on the seafloor were damaged particularly heavily, requiring very costly repairs.

Even worse damage occurred some 74,000 years ago or so, when another large supervolcano exploded, killing all human life on earth except for a few thousand in Africa. More on that shortly.

Most of all, in 1997 Secretary of Defense William Cohen specifically confirmed that terrorists already were using electromagnetic weapons to stimulate volcanoes into eruption {xxxv}. Since that is confirmed, and since the Yakuza has the scalar interferometers to do so, it follows that the Yakuza also will have identified the volcanoes in which the most damaging eruptions could be induced to strategically destroy or severely maul the United States. And so it has.

To further illustrate the killing power of a supervolcano, consider the eruption, about eleven million years ago, at Bruneau Jarbridge south of Hagerman, Idaho. This eruption covered half of North America with ash two meters thick. Distinctive fossils as far away as Nebraska, 1600 to 2000 kilometers distant, reveal ash piled two meters high that choked the vast animal population of North America to death. Marie's disease, a deadly lung disease caused by ash exposure, contributed to the mass extinction of North American megafauna.

Also consider what probably happened about 74,000 years ago with the explosion of the supervolcano whose caldera today lies under Lake Toba on the Indonesian island of Sumatra. Though the findings are still controversial, increasingly it appears from multiple evidence that the eruption of Toba wiped out all human life on earth except for a few thousand humans in a location in Africa. This follows a formal theory by Professor Stanley H. Ambrose {lv}, which has gained support as a result of independent geological {lvi} and genetic evidence {lvii}.

Genetically, the human mitochondrial genetic trace clearly shows a dramatic and sudden reduction in genetic variability (called a genetic bottleneck) some 74,000 years ago. Also, present human genetics shows that the ancestors of every person living today came from Africa. After a period of continuing extinction, then during the last 74,000 years following that violent eruption, every human born on the planet descended from the few thousand humans in Africa who survived. Apparently all other humans on earth perished, along with their inherited genetic variations, producing a profound genetic bottleneck in the entire human species {lviii}.

Quoting Professor Lynn Jorde, a specialist at the University of Utah who uses deep analysis of mitochondrial DNA to investigate mankind's past {lvii}:

"We have a dramatic reduction in genetic diversity during this time when the population is very small and then after the bottleneck the people who we see today would be descendants only of those who survived. And they're going to be genetically much more similar to one another, reducing the amount of genetic variation. ...Mutations in the mitochondria take place with clocklike regularity, so the number of mutations gives us a clock essentially that we can use to approximately date the major event. In the case of a population bottleneck, we think that this would have occurred roughly 70-80,000 years ago, give or take some number of thousands of years. So then the real question

is: What could have caused such a reduction - an extreme reduction - in the human population down to as few as 5 or 10,000 individuals?"

Increasingly the cause appears to be almost certainly the recognized supervolcano eruption at Toba, some 74,000 years or so ago {lix}.

As another example, there is a volcano named Cumbre Vieja, on the Island of La Palma in the Canary Islands, which split in the past. The split-off western flank - about the size of the entire Isle of Mann - still hangs above the ocean, poised to slip into the sea. Its eventual crash into the sea will evoke massive tsunamis, moving outward at some 600 miles per hour. Within 7 to 10 hours, an immense wall of water, up to several tens of meters high, will strike New York, Boston, and the eastern seaboard, penetrating inland and devastating the area {lx}. It is not a matter of if the incident will occur, but only a matter of when.

Tsunamis from underwater volcanoes, seafloor earthquakes, and other shocks occur around the world, including in the Pacific Ocean. Quoting {lxi}:

"In the last 1,000 years, Pacific Ocean tsunamis have been observed and recorded over 1,000 times. All of these were major catastrophic events, since smaller events often go unrecorded."

Cumbre Vieja presents another wonderful opportunity to the Yakuza, who almost certainly has registered their scalar interferometers on it, intending to evoke a tsunami by triggering the volcano into eruption. If so, then this is one of the earthquake eruptions that are almost certain to be initiated by the Yakuza, during the next two years, to assist in causing huge economic damage and mass casualties to the east coast of the United States. Incredibly, the U.S. apparently does not monitor Cumbre Vieja to enable hours of advance warning of the giant tsunami. Without a warning system and lead time to evacuate major cities, great loss of life and economic destruction can be expected.

Further, there are conditions off the west coast of the U.S. that are also suitable for induction of undersea quakes and large tsunamis. Undoubtedly these are already on the Yakuza's target list and schedule for striking.

As pointed out by Stockton {lxii}, there is also the possibility of heating methane hydrates (frozen natural gas) on the eastern continental shelf to cause massive undersea landslides, which would also cause tsunamis.

The strategic significance of Secretary of Defense Cohen's statement {xxxv} in April 1997 becomes abundantly clear. He was referring to a grave strategic destructive capability, already in the hands of the terrorists and available. He was confirming that this capability is already being used by the terrorists in their asymmetric war against us.

That strategic destructive capability, when adroitly utilized, as in the simple examples given, is as powerful as the full nuclear ICBM capability of the Soviet Union or the United States.

Since the Yakuza interferometers can also massively intervene in submarine volcanic and earthquake activity on the ocean floor worldwide, their capability to induce giant tsunamis and other violent waves, in addition to giant quakes and volcanic eruptions, is of the gravest significance.

Indeed, the Yakuza recently spectacularly demonstrated such effects, under the direction of the FSB/KGB. On Dec. 26, 2004 they initiated the magnitude 9.3 seafloor quake that caused severe tsunamis and loss of life in Asia, now thought to include more than 300,000 deaths in addition to enormous economic damage.

### Summary of Some Weather Engineering and Other Capabilities

Some of the simpler scalar interferometer capabilities in engineering of the weather and geophysical events are:

- a. Steering the jet stream, thus steering a weather entity (i.e., storm, front, air mass, and hurricane). Warming the air in one region expand it so it becomes less dense, creating a low pressure area. Gradually moving the target interference zone determines its path. Cooling the air in a region produces the opposite effect, a high pressure zone, steerable in the same fashion. By making multiple highs and lows and adroitly positioning and steering them, the jet streams and other prevailing winds can be entrained, captured and steered. This alone allows substantial augmentation and steering of weather effects.
- b. Warming or cooling the atmosphere in a storm or front to affect its power.
- c. Producing sharp negative energy EM pulses inside a storm so that the negative energy Dirac sea holes "eat" electron charges, reducing the storm's charge and power.
- d. Producing positive energy EM pulses just outside a storm in order to lift extra electrons from the Dirac Sea, to increase the storm's charge and power. In that case the resulting Dirac holes expand outward and away from the storm, having no effect on it. As they meet stray electrons, these holes eat the electrons and both disappear back into the vacuum, as ordinary vacuum (the Dirac Sea).
- e. Building very large rotational atmospheric flow in the path of a storm, and then sharply decreasing the diameter of its curvature, so that the storm's angular momentum spawns concentrated spin flows or meteorological circulations, to form tornadoes, waterspouts, etc.
- f. Establishing a large high pressure area in a region to block lower-pressure normal winds and storm directions.
- g. Establishing a large low pressure area in a region to attract higher-pressure normal winds and storm activity.
- h. Focusing the interference zone inside a volcano's magma chamber and steadily depositing additional EM energy there builds up internal pressure, causing an eruption. A slow rise in pressure, resisted by friction, engenders a large and violent eruption, and consequently maximizes the distant dispersion of great quantities of ash, lava, and other debris.
- i. By more rapidly inputting the energy into the volcano, the eruption will occur at a lower pressure and so a smaller eruption will ensue.

- j. All sorts of EM energy forms glowing spheres, hemispheres, etc. can be produced and used against various targets, for electrical and electronic destruction or for an electromagnetic explosion when the energy contacts the intended target.
- k. Depositing extra interferometry energy into a fault zone increases stress and piezoelectric activity in the rocks, thereby inducing an earthquake when the rocks finally slip. By adjusting the rate at which the excess energy is added, the size of the resulting earthquake can also be changed.
- l. By increasing the charge of a storm, its electrical activity and the resulting lightning strikes can be increased. This is useful, e.g., in repeatedly producing large forest fires, particularly when combined with weather engineering to produce a drought condition. On the other hand, by decreasing the charge of a storm, its electrical activity and therefore its lightning strike activity can be decreased.
- m. By inducing repeatedly pulsed negative energy in an area containing living animals or humans, the animals or humans can be directly killed. Strong pulsing will result in rather instant death, where the bodies drop limply, with not even a nerve cell firing thereafter. Everything living — cells, microbes, viruses, whatever — in the powerfully struck bodies is killed instantly, and the bodies do not decay, even over a month or more. The Soviets tested such weaponry in this mode against two Afghan villages in their own war in Afghanistan, and it is probable that the Yakuza has produced portable negative energy EMP weapons with similar capability.
- n. The longitudinal EM wave sets — and beams of such — transmitted by a scalar interferometer easily penetrate Faraday shields, the ocean, the earth, etc. That is because matter is mostly empty space filled with Whittaker EM fields and potentials, which in turn are bundles of longitudinal EM wave sets. Hence matter is a "superhighway" for the throughput of longitudinal waves. Such longitudinal wave weapons are very useful in attacking deep underground targets and facilities and destroying them or wreaking damage. As an example, the leader of a nation can be killed sitting in the chair at his desk, by a precision scalar interferometer. The interferometry focus has been demonstrated down to a few inches. In Japan, the Yakuza has demonstrated this capability on a few occasions to kill several Japanese critics inside shelters or shielded facilities. The significant impact on the very notion of shielding by strategic command and control centers in underground bunko and facilities can be easily appreciated. Essentially all facilities and personnel become completely vulnerable.
- o. The use of a more portable scalar interferometer to destroy the electronic controls of a normal or nuclear power plant from a distance is obvious. With nuclear power plants this poses the risk of a melt down. Electrical controls for pipe valves, etc. are also vulnerable; spent nuclear fuel rods are largely stored in underwater pools on normal power plant sites. If valves open and the water drains from those pools, the rods will heat up and a melt down or very hazardous venting of radioactivity can ensue.
- p. The control systems for hydroelectric dams are deadly vulnerable to scalar interferometry attack.
- q. Large electronic complexes such as switching and control systems, centralized control systems for power grids and substations, etc. are highly vulnerable to attack by long- or short-range scalar interferometers.

- r. Chemical plants, refineries, fuel storage sites, tank farms, etc. are also highly vulnerable to scalar interferometry, including to portable attack.
- s. Liquid natural gas ships, oil tankers, etc. are also extremely vulnerable to scalar interferometry attack.
- t. Surges on the power distribution grid transmission lines can easily be accomplished by scalar interferometry at will, methodically causing great damage to the grid and emergency shutdown of most of its "feeding" power plants. As much of the grid as desired can easily be kept nonfunctional, as long as desired, by occasional repeats from a single long-range scalar interferometer.
- u. Any communications center or headquarters is completely vulnerable to attack and destruction by strategic or portable scalar interferometers. Since a scalar interferometer can also produce negative energy EMP pulses of extreme lethality in the interference zone, all centralized command and control systems are essentially totally vulnerable. As an example, our own future network centric warfare communications systems can be totally destroyed in a few minutes by only a few scalar interferometers, even by just one.
- v. Many other capabilities also exist to use the interferometry to affect the weather, the atmosphere, the rocks in the earth or at the bottom of the ocean, etc.

Once the Yakuza scalar interferometers are factored into the strategic terrorist threat situation, there is no recourse that can save the present centralized electrical power system, large U.S. command and control systems, etc.

The only way to prevent the total economic collapse of the United States induced by collapsing the centralized electrical power system is to immediately initiate the strongest possible energy from the vacuum systems development and production program. For the nation to survive the coming destruction of its power system, the goal must be to replace the entire centralized power system, including its long distribution lines and large feeder power plants, with decentralized EFTV power systems as rapidly as possible. That centralized system is simply not defensible and not sustainable against current threats, and against the hostile assets already successfully inserted or waiting abroad to support terrorist operations inside the U.S.

So the strongest possible immediate efforts are necessary if we are to prevent our total economic collapse in about two years, and also our subsequent total destruction by combined scalar interferometry and internal terrorist attacks. A massive Manhattan-type project to develop and deploy EFTV electrical power systems is most urgently required, as at least equal to the highest U.S. priority. We bluntly state without further discussion that such EFTV systems are indeed already developed in our own country and worldwide, and so they are available, but they have deliberately been withheld or suppressed for decades. Now they must be unleashed.



Short of a direct Presidential order and Presidential Decision Directive, there appears to be no way that the necessary program can be or will be galvanized because every powerful scientific industrial, and government laboratory cartel in our society is bitterly opposed to any such program or action. Our morose assessment is that, unless some other major strategic factor significantly enters the conflict, the Yakuza and other terrorists — attacking our present centralized and totally vulnerable control, planning, and energy systems - will probably succeed in catastrophically destroying the U.S. economy on schedule. If so, that will leave the U.S. prostrate for its subsequent rapid physical destruction by the jubilant Yakuza in a giant "turkey shoot". And hence our oblivion.

### U.S. Societal Polarizations Are Being Gradually Increased

Among sociologists, there is much support for the notion that societal polarizations naturally tend to increase {lxiii}. Further, many pollsters state that the nation is very seriously polarized already, particularly since the recent presidential election. For example, quoting John Zogby on the 2004 elections {lxiv}:

"I have been calling this the Armageddon election now for months because we are so polarized, so split culturally, politically, ideologically, demographically, like almost no other time in American history. ... The last time the nation was this deeply divided over what course to take was the original Armageddon election of 1800."

However, for the first time in history, certain rather esoteric "mind war" FSB/KGB weapons are being directly employed to gradually and reliably intensify the societal polarizations in America— straight vs. gay, conservative vs. liberal, Republican vs. Democrat, one religion against another, one race against another, labor class vs. financial class, etc. The strategic objective is to increase and intensify the extreme ends of these polarizations, by altering the behaviour of certain leaders. With intensification, the polarizations will slowly become so fierce that, about two years from now, serious rioting and bloodshed massively spilling into the streets and cities will result in chaos, martial law, etc. and severe polarization and disorganization. In short, the society will be engaged in fiercely consuming itself.

So far, the deliberate escalation of our societal polarizations by the new mind war and conversion techniques is right on schedule, as anyone can see now, and will increasingly see over the next two years.

U.S. societal polarizations will continue to increase now that the election is over. Temporary conversions and fractional conversions {vii} of the minds and mind operations (and therefore the behavior) of selected leaders or prime movers in the various polarization areas are being used and will increase. This capability arises from the branch of energetics known as psychoenergetics, and such measures are now being used selectively to intensify our polarizations. Particularly see our giant briefing on mind war and conversions, in the second part of this book.

Dramatic tests of the distant, total control over the mind and behavior of a person performing an intensive technical task (flying and operating an aircraft as a weapons platform) {lxv} were conducted against Captains Button and Svoboda in 1997. A third test against Captain Hess in 1998 demonstrated total control of the autonomic nervous system as well. Those dramatic "suicides" were deliberate, high profile stimuli to see if our own intelligence analysts knew anything about psychoenergetics yet. The answer was a very resounding and clear "No, they are still ignorant of that area, they are very determined to remain ignorant of that area, and hence the nation is still deadly vulnerable to use of such weapons and effects."

Our scientific community still does not understand that mind operations are totally electromagnetic but temporal, not spatial, although they also have virtual state projections in 3-space. Because the scientific community has suppressed the source charge problem, they have no notion of the exact mechanism by which virtual state changes can be integrated to observable changes, electromagnetically by the action of charge itself.

They also do not understand that observations in 3-space have small virtual state projections in the time domain (as mind operations). Our scientists have no understanding at all that mind operations are (i) electromagnetic, (ii) temporal, and (iii) directly engineerable and creatable (but using time-polarized EM photons and waves). They do not understand what thought is, what intent is and what its exact mechanism of expression is, and how mind and body are coupled to provide a living biological system.

Again, because our nation is so totally vulnerable to mind war conversions and fractional conversions, a U.S. crash program of utmost rapidity to catch up in that area, under a Presidential Decision Directive, is urgently required.

For example, on his customary morning exercise jog at a military post in the U.S., in March 1998 Captain Gordon Hess suddenly veered aside, sat down, took out his knife and calmly stabbed himself in the neck and torso some 26 times, including multiple thrusts directly through the heart. Note that the shock of a stab through the heart is considered in forensic medicine as generating such shock and recoil of the autonomic nervous system that it is not possible for an intentional suicide to continue, much less to achieve a total of 26 repeated stabs until the body simply became nonfunctional and toppled over.

In short, total control of even the deep autonomic nervous system was demonstrated resoundingly. The purpose of the test was two-fold: (i) demonstrate distant instant conversion and total control, including of the autonomic nervous system itself, and (ii) stimulate and "ping" U.S. intelligence to see if they knew what was going on, what had been tested, and why. Both purposes were achieved. The test went perfectly, and the U.S. demonstrated it was totally asleep and totally ignorant of such technology, and even of the technology's ansatz. Indeed, by order of the U.S. Army, two days later front loaders dumped two tons of dirt on the death scene, effectively hiding any further evidence. This is reminiscent of a

similar U.S. government action at the crash site of the Arrow DC-8 at Gander Air Force Base, Newfoundland in 1985. A general officer arrived very quickly on the scene, and had the entire area bulldozed after extracting the wreckage.

As stated, the Yakuza is a major arm and the protege of the FSB/KGB's coordinated asymmetric war and terrorism, carrying the bulk of the strategic war to be conducted within the U.S., and reporting to those die-hard old communists who are the hidden FSB/KGB directors. The Yakuza view is that - together with the other terrorist organizations already having infiltrated substantial assets into this nation, and together with chaos in U.S. streets due to severe polarization gradually being intensified now — they are already helping to bleed the dragon increasingly. Then as the scenario progresses they will joyfully begin the direct destruction of the centralized U.S. electrical power system and other key economic targets (harbors, refineries, pipelines, etc.). They will also participate in immune system spreading (explained later in this paper), as a force amplifier to biological warfare strikes by other terrorists. As all of this hostile action and destruction ramps up over the next two years, it will crescendo and catastrophically collapse the entire economy of the U.S.

Added to assure that great economic collapse, there will also be a sudden and massive collapse of "group ordering and coherence" (GO) induced by massive conversions of " sleeper" inserted conversions and fractional conversions. E.g., by sudden switching conversion of massive numbers of key persons whose behavior instantly and dramatically changes all over the map, the order and coherence of any important group can be and will be devastated and lost, immediately. Our police forces may suddenly begin attacking our populace, while crews manning and operating our ICBMs, nuclear subs, and nuclear bombers "go crazy" and erratically start firing at our own cities, and at each other. And so on, in a society that has suddenly erupted into total schizophrenia. Throughout the U.S. and Canada, GO will rather dramatically become NO-GO, as all group coherence is lost and total chaos sets in, as in the two examples given..

Given the planned present offensive schedule and the insertions already accomplished, indeed the plan for full strategic destruction of the U.S. is likely to succeed.

The psychoenergetics conversions and fractional conversions are a major strategic weapons program in support of the present three-year "Operations Phase" schedule for strategic destruction of the U.S. So it is also a program that supports the strategic destruction of the centralized U.S. electrical power system including its infrastructure, as one purpose.

The original targets desired by Bin Laden for the 9/11 attack actually were nuclear power plants etc. — parts of the centralized electrical power system — rather than the more symbolic Twin Towers, Pentagon, and White House. The targeting was apparently changed by Bin Laden himself. He felt that his assets in place and available were not yet sufficiently trained to produce a truly effective, coordinated simultaneous set of attacks on nuclear power plants and other

"harder" targets. So to guarantee success, he opted for strikes on symbolic but softer targets, which would provide great publicity stimulus in the MidEast for his cause, in addition to causing great consternation in the United States.

### Insertions Far Exceeding Public Acknowledgment

Long before its economic collapse in the latter 1980s, the former Soviet Union inserted nuclear weapons in all our major cities and population centers, along with Spetznaz teams to detonate them on command. Lunev's book {lxvi} even tells a few of the ways the weapons were inserted. Those weapons and teams, still controlled by the old-guard Communist faction that dominates the FSB/KGB, are still here, still waiting for the order to detonate the nuclear weapons and destroy the United States. The Communist faction (not the younger and more liberal faction from which Putin comes) is the one plotting to destroy the United States.

These Russian nuclear weapons and teams may be brought into play during the operations phase as several substantial nuclear explosions in major U.S. population centers that will be blamed on the international terrorists. The result will be great loss of life, nuclear contamination of several large U.S. cities, complete overwhelming of our Homeland Defense and medical capability to handle mass casualties, and terrible physical damage to further guarantee the scheduled catastrophic U.S. economic collapse once the centralized electrical power system is taken out.

As previously mentioned, we would have been destroyed by the former Soviet Union in the late 1970s, by those successfully inserted Soviet nuclear weapons already at their target sites on station in the U.S., except that a friendly nation also inserted nuclear weapons massively into the cities and key target areas of Russia. Those friendly weapons are also still in place, waiting for the order for their detonation if necessary. This sort of thing in the "old days" of cold war intelligence was called dead man fuzing. It is still in place today, but its "range of uses and functions" has substantially increased.

Being chess players and rational adversaries, the Russians can be countered by a balance of terror including dead man fuzing — the old Mutual Assured Destruction (MAD) notion with the twist of using inserted nuclear weapons already on site in the targeted nation — because they will not just commit mass suicide for Mother Russia. So the United States survived in the 1970s, courtesy of a friendly nation, and we were not suddenly destroyed by American city after city blowing up in a nuclear inferno. The MAD tactic worked because the adversaries were known and their location could be destroyed at will.

However, with irrational foes such as those in the war on Islamic terrorism, mutual assured destruction is not an effective deterrent. There is no single nation or location in which to insert "dead man fuzing" against the terrorists or target with deliverable weapons of mass destruction. The present terrorists are not localized, but are dispersed worldwide and embedded in the civilian populaces of many nations, including our own. In that case, there is only assured destruction of

the nation targeted by the terrorists, if and when the terrorists successfully place enough weapons of mass destruction into the targeted nation(s). In short, MAD simply turns into AD. The terrorists will soon achieve that capability, if they have not already reached it.

In the case of assured destruction, the insertion phase — which can reach a very high assurance level before the operations phase is initiated — becomes the key to winning or losing, given that the terrorists have or obtain sufficient WMD assets to insert.

The purpose of strategic asymmetric warfare is to kill or destroy the targeted populace. It is a fanatical ultimate expression of General George Patton's famous, blunt statement:

"I want you to remember that no bastard ever won a war by dying for his country. He won it by making the other poor dumb bastard die for his country..." {lxvii}.

### Modern Asymmetrical War: The Scorpion Duel

We thus are back to the absolutely primitive warfare of two dueling scorpions: He who first succeeds at insertion, and then strikes his enemy hard and decisively in his vitals, is he who wins a priori.

The procedure is to first ensure that one will hit the foe's vitals catastrophically, and sufficiently to destroy the entire foe himself. That is the Insertion Phase. Then the procedure is to unleash what has been assembled, thereby destroying the foe. That is the Operations Phase.

Hence the success of the insertion phase — inserting the necessary WMD and operational teams into those vitals in advance — predetermines the success of the subsequent operations phase, where one strikes on order, unleashing the WMD and destroying the nation's vitals and therefore destroying the foe.

For the targeted scorpion, there is no turning back or delay, once the insertion phase of the scorpion duel begins against him. Successful insertion of the required WMD and WMD teams — during a time our folks innocently think of as "peacetime" — almost inevitably wins the war by destroying the penetrated adversary very shortly after the operations phase begins. In a nutshell, those two phases — insertion followed by operations — constitute the "offense" part of asymmetric war. And since peacetime is just the insertion phase, asymmetric war is perpetual war, whether or not shooting is ongoing.

There has been little public "briefing" by our government on what the estimated success of the insertion phase against us has been and is now. Apparently much of the analysis is in disarray, filled with assumptions, and very short on actual definitive data. It also follows that most definitive data in this area would be highly classified, particularly to protect effective human intelligence (HUMINT) sources.

Now one can appreciate VP Cheney's morose statement. Since "peacetime" now is just another name for "insertion phase", then "perpetual peace" is still "perpetual war" in the new vernacular. So we have entered a "perpetual war" we have not previously known or understood. There is no real peace in the sense we think of it. There never will be any peace again, until one opposing side of the dueling scorpions is utterly destroyed.

The "defense" part for the terrorists is to hide or defend their own "vitals" — their actual bases, support organizations, supply routes, troops and forces and equipment, etc. In the present asymmetric war, there are no single terrorist bases for us to just "knock out" decisively. We cannot win this war by simply having our troops riding out of "Fortress America", meeting and defending some hostile army on some distant battlefield, and then riding back into our protected fortress again. There no longer exists such a thing as a "protected Fortress America".

Instead of an identifiable single army on a single foreign battlefield, the terrorist foe's "vitals" are hidden around the world, in many places, and in many ways. Many of them — often the most dangerous of them — are secretly hidden right here in the United States, inserted during the insertion phase which has been ongoing for at least 20 years.

In the U.S., we cannot "hide" our vitals such as refineries, pipelines, railroads, bridges, electrical power plants and long transmission lines, harbors, water supplies, food supplies, etc. Instead, we can only try to protect them against their certain attack, and try to limit the damage and destruction. The main target for the terrorists is not just our military forces, but is primarily our civilian populace and especially our national economy — which is particularly vulnerable by the rather simple destruction of our centralized electrical power system and its primary support infrastructure.

The real art of asymmetric war is to first draw most of the targeted opponent's military forces out of the protected fortress and get them scattered widely in distant locations and distant struggles. By augmenting the distant resistance, this forces the targeted nation's military forces mostly to be deployed elsewhere, leaving the internal fortress itself much less protected, and thus making it highly vulnerable.

Once the major decisive action is shifted to inside the protected fortress, there is an urgent necessity for (i) a strong Homeland Defense, (ii) well-organized and effective mass casualty treatment capabilities (which presently do not exist), and (iii) strong border defenses, sealing of the borders, and interception of insertion attempts as they occur, etc. This also presently is not in place; our borders are full of holes and in many ways almost a joke. There is also the urgent need to go after the opposing scorpion's "vitals" wherever the pieces can be located and "fixed in place" and destroyed.

Ironically, for the U.S. these urgent needs come at a time when our HUMINT resources have largely been abandoned or nullified, by the past fascination of our

intelligence community for technical widgets such as satellite photography, etc.

So our ability to ferret out inserted cells and WMD has been sharply reduced by the intelligence community itself.

Effective HUMINT takes years to get established with successful agents infiltrated into the terrorist cells and planning organizations. So not too much is going to be rapidly accomplished to resolve our HUMINT shortfalls. Much of what HUMINT is available is either from foreign sources or is due to the clandestine cooperation of much of the peaceful U.S. Muslim community, which sees this nation as its own country, and thus sees any threat to destroy the U.S. as a threat against the peaceful Muslim religion itself. To understand some of the factions and divisions of the Muslim world, the reader is referred to treatises by Williams {xcvi, xcvi}.

But the scorpion duel is highly sensitive to being able to (i) find the opponents vitals (which now are the inserted assets and terrorist teams within one's own nation) and (ii) go after the scorpion's vitals and destroy them in what are erroneously called "peacetime operations". Ironically, one sets up winning or losing the asymmetric war, by one's actions in peacetime. Once in an asymmetric war, "peacetime" is the absence of significant overt active hostilities, but with the presence of fierce covert insertion and preparations for the follow-on operations phase and the "knockout" punches.

#### Distant Military Actions: Necessary but Not Sufficient

Hence one cannot think of winning major battles and the asymmetric war in a few months or even a few years, simply by fighting successfully on well-defined distant battlefields. Those distant conflicts and confrontations are necessary but not sufficient, a term mathematicians delight in using. It simply means one has to do it, to prevent losing, but by itself it is not sufficient to win the war on terrorism.

Instead, one must also think of a continuing gritty, gruesome war, lasting for decades, ongoing in one's own cities and population centers and installations. One rather gradually grinds down the terrorist opponents and rather gradually uncovers and destroys the various parts of their vitals, while protecting one's own vitals as much as possible, and while rooting out everything one can of the insertions made by the foe or further attempted by the foe. Here effective HUMINT is vitally important, and our shortage of it is a grave strategic vulnerability. Obviously our intelligence agencies are also scrambling to try to get such HUMINT effectively going again.

If one destroys the terrorists' assets and capabilities before they destroy him, one survives, but still must root and destroy the terrorists themselves. If one does not succeed in doing that, one dies because the terrorists will resurge and destroy him without mercy. This is the message the Al Qaida and other terrorists are symbolically sending, when they behead prisoners and hostages. It is absolutely a scorpion duel to the death.

With the abrupt wake-up call of 9/11, we were suddenly confronted with the continuing and unrelenting nature of this asymmetric warfare. At least officialdom and our armed forces were confronted with it; there has been no truly adequate news briefing or educational series for the American public on such matters.

The military schools of the Army, Navy, and Air Force do include education on such asymmetric warfare, including highly classified courses at the top secret level. But certainly the U.S. public still does not understand the absolute necessity for Cheney's morose statement or the full nature of the new reality of asymmetric war {xlvi}. Indeed, much of our population is polarized, because of— for one thing — a substantial and naive belief that all problems could readily be solved by negotiation, if only Bush were so inclined.

Indeed, as with every other strong and emotional subject, the subject of "asymmetry" in warfare is itself a societal polarization area. Typical "anti-views" simply downplay the very notion of asymmetry as being "nothing new or special" in warfare {lxviii}. As one reads such treatises, it becomes crystal clear that our own strategic planners and strategic theorists themselves are often confused, simply recasting asymmetric war into what has gone before. They are not factoring in such radical developments as the Yakuza's acquisition and use of scalar electromagnetic superweapons, or the dramatic change that occurs in the theory once full strategic U.S. destruction is a capability already in terrorists' hands, with multiple knock-out blows already cocked and waiting. And they certainly are not factoring in the stunning implications of mind war, conversions, etc.

If one can disable an entire populace mentally, at a single stroke, one can use such "mind war" conversion switching to destroy any order in the society nearly instantly.

With suitable preparation during the insertion phase, terrorists and foes with such capability can indeed achieve sudden massive "knockout" of a targeted populace, in ways presently not dreamed of by the open press.

### Asymmetric Warfare Simplified: An Overview

Let us briefly discuss this "new" kind of "old" warfare in the most direct manner possible. The present war is a very different kind of warfare called asymmetric war. It consists of two phases: (1) the insertion phase, (conducted in what we erroneously call "peacetime"), during which the necessary WMD and teams to operate and unleash them are inserted in the targeted nation's populace, population centers, and key target areas and made ready to go, and (2) the operations phase, in which the inserted forces and assets are unleashed, thereby destroying the targeted nation — in this case, the U.S. itself. The bulk of the target and intention is to kill U.S. civilians and destroy critical facilities right in the U.S. homeland — as many as possible, as efficiently as possible, and wherever and whenever possible.



Secondary<sup>8</sup> to the important of population kill during the operations phase is the destruction of the targeted nation's economy, catastrophically and decisively. If the foe succeeds dramatically in accomplishing the insertion phase, the foe will almost automatically win the follow-on operations phase a priori, unless he is an utter fool.

Further, the development of secret weapons and superweapons is not confined just to their use in overt warfare. Depending on their nature, they can also be used in covert or asymmetric warfare, in great surprise and shock upon the targeted populace.

Our very real problem today is that the insertion phase has been going on for at least two decades, while we were literally "sleeping" as far as intercepting and degrading the insertion effort by any substantial degree at all. The blunt truth is that the terrorists' Insertion Phase has just about been successfully accomplished already. We are in grave danger of being utterly destroyed, with high assurance, in the three-year Operations Phase whose first part has already begun.

Compare the conduct of asymmetric warfare as analogous to orienting and setting up weapons and ammunition and target lists for a massive artillery barrage, and preparing to make a massive attack with that barrage. One first gets the artillery guns shipped into the necessary assembly areas, assembled in place, with their ammunition and crews inserted and made ready, with their target lists completed and waiting. Then one gets the vast assembly of guns and crews properly registered on their specific targets and ready to go. That's the "insertion" or "preparation" phase for a normal mass artillery bombardment.

Then the assemblage of "weapons in place" simply fires the massive barrage on order, and that is the "operations" phase, exploding with suddenness and great violence right on the enemy's vitals. An important major characteristic of this "normal" warfare insertion phase is that it is the insertion of the delivery systems, to chosen "attack positions" outside the targeted area.

In asymmetric war, instead of assembling all the external delivery systems (cannon, rockets, missiles, bombers, etc.) it is as if most of the deadly ordnance is already delivered and is assembled right in its target areas, inside the targeted nation, along with the necessary teams to set them off right there in place. Long-range additional systems placed "outside" the targeted nations can also assist or lend support, particularly if the systems are still secret and unknown to the targeted nation.

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<sup>8</sup> However, if the economy can be catastrophically destroyed along with total disordering of the society by sudden massive mind conversions, destroying all coherence, the entire population is reduced to hapless targets and already completely defeated. Such a hapless populace can then be methodically destroyed.

In short, in asymmetric warfare the "delivery" part of the former operations phase is pre-accomplished, before hostilities even begin. So the insertion phase gets the artillery rounds placed right at the target during "peacetime", and avoids any further assembling of the external artillery pieces, rocket launchers, and other delivery systems necessary in the conventional war approach.

Thus successful insertion in asymmetric war overcomes one of the vagaries of standard war: the inaccuracies and mishaps caused by misdeliveries and/or losses of the delivery systems themselves prior to delivering the ordnance on the distant targets. In normal war, those misdeliveries and losses to the delivery systems directly subtract from the effects achieved on the target once the attack is initiated. In asymmetric war, the cost of misdeliveries and losses to the inserted WMD are paid for before the hostilities and before the attack (the operations phase) begins. So given a successful insertion, "delivery system losses" prior to attack do not subtract from the effectiveness of the attack results, once the attack is initiated. Indeed, successful insertion is a great force amplifier.

Once the hostile terrorists possess weapons of mass destruction and have already delivered them onsite to the actual targets, the "massive barrage" of the operations phase is certain to destroy the targeted foe, if the terrorist leaders have any competence at all in their planning and preparations. The great advantage of the insertion phase is that it covertly prepares a great "barrage" where the "ordnance delivery to the exact target locations " has already been accomplished and its lethal effectiveness against the actual targets has therefore been assured in advance. With proper stealth and intrigue, the insertion phase can be accomplished slowly and at will, and without any extraordinary resistance being offered by the "sleeping" targeted nation or population! After all, it is "peacetime" when such clandestine insertion operations are conducted. In the new concept, "peace" is simply the insertion phase of the perpetual war.

So asymmetric war bypasses much of the normal overt concern with long range delivery systems such as ICBMs, strategic bombers, aircraft carriers, nuclear submarines, etc. The usual giant armada of delivery systems is largely unnecessary, if the terrorists can successfully perform the covert insertion phase, instead, the terrorists' major early activity is in ordnance procurement, not in building long range delivery systems.

Obviously asymmetric war dramatically differs dramatically from normal symmetric war, and so there are definitely some new questions which must be asked and answered.

#### A Few Questions to be Answered

In an asymmetric war situation, some major appropriate questions for the targeted nation are: Are all the terrorists identified as to parent organization, etc.? How certain is the targeted nation that there have been no substantial omissions from its foe identification and capabilities list? Are there already effective compensatory

plans in case there suddenly are uncovered additional terrorist organizations or parent organizations, and/or additional capabilities?

What is the WMD and other clandestine weapon capability of the terrorists, their organizations, their supporting nations or groups, etc.? How certain is the targeted nation that there have been no substantial omissions from the weapons capability lists? Are there already effective compensatory plans in case there suddenly are uncovered additional WMD or clandestine weapon capabilities of the terrorists or their parent organizations?

In view of Secretary of Defense William Cohen's seminal 1997 statement, what specifically is the capability of the terrorists to cause those volcanic eruptions, weather engineering and climate control, and initiation of earthquakes? Particularly in view of anomalous quake swarms ongoing, and the disastrous 9.3 undersea quake on Dec. 26, 2004 that initiated the catastrophic tsunamis in Asia? What specifically is the nature of these strange "electromagnetic" weapons confirmed by Defense Secretary Cohen? What specifically are the counters to them, and specifically how effective are these counters? Further, why is so large a percentage of the government still unknowledgeable of this critical portion of the terrorist threat and thus totally unprepared for it? Why has the American public not been completely and adequately briefed on these confirmed terrorist developments?

Even though known specific foreign areas with concentrations of the terrorist organizations and/or their support groups are targeted for attack and neutralization, how much of the total terrorist capabilities have been reduced by such measures? What if anything has been the impact on the inserted capabilities already inside the United States?

Exactly what information is officially available (and to what degree of confidence) on the "missing" 5 Ukraine SS-19 Stiletto ICBMs, each missile with 6 nuclear warheads and each warhead of several hundred kilotons yield? {lxix} To add spice to the controversy, three years after "all" the SS-19s were supposedly turned in and accounted for, another 31 physically turned up in Ukrainian silos and warehouses! One also questions what happened to the additional 230 or so missing "extra" nuclear warheads from the Ukraine total? {lxx, lxxi} What happened to the missing Russian suitcase nuclear weapons? {lxxii} What happened to the 20 suitcase nuclear weapons allegedly purchased by Bin Laden {lxxiii}, etc.? What if anything has been done about the already-inserted Russian nuclear weapons and Spetznaz teams in our cities and population centers? What if any defense or countermeasures exist to prevent our destruction at some point, from these nuclear weapons alone? And again, why has not the American public been adequately briefed on such hostile capabilities and on the "nuclear knives already at our throats"?

How long has the insertion phase been ongoing? How effective or ineffective has interception and neutralization or intercept of the insertion attempts been? Again, why has the American public not been thoroughly briefed on these areas? Why

has the Congress not been adequately briefed on them? What is Homeland Defense doing about them?

What is the probable target listing believed to have been compiled by the terrorists, based on their actual weapon capabilities and the degree of insertion success actually accomplished? Considering Bin Laden's background in economics, and his past statements on the importance of disrupting the economics, is not the near-absolute vulnerability of our centralized electrical power system our greatest strategic weakness, insofar as catastrophic collapse of the U.S. economy being introduced? If so, why has the scientific community and industrial community been allowed to push for hot fusion, hundreds of pebble bed reactor nuclear power plants, etc. when our entire centralized electrical power system will be destroyed long before any of those could come on line? Even if the nuclear power plants were built and on line, they too are "sitting ducks" and "fat targets", so what is to prevent their easy instruction by the Yakuza scalar interferometers, both long range external systems and portable inserted systems?

What are the various options for the assessed terrorist "preparation" at the particular stage of their insertion phase, or in the near future? Which of these options have the greatest probabilities of destroying or inflicting unacceptable damage on the targeted nation? Which of these options are also matched by known or detected insertions already accomplished or attempted?

Since we know that certain of our enemies — e.g., the KGB/FSB — understand the importance of surprise weapons or superweapons, what is our very best assessment of the probability and capability for the terrorists possessing and inserting surprise weapons or superweapons for which the targeted nation has little defense capabilities? E.g., what about the surprise "electromagnetic" weapons the U.S. Secretary of Defense confirmed, while most of the U.S. government officials — and even our own intelligence agencies, which still largely base their EM intelligence analyses on the totally inadequate electrical engineering model — are still unaware of them? Why has not our scientific community been made fully aware of them, and put to intensive work on them? And since it is perhaps our greatest vulnerability, why is an aged piece of inadequate EM modeling with known serious falsities still perpetuated by the U.S. scientific community, NAS, NSF, NAE, the DoE, etc.? Who's competently watching the "technical store" anyway — is anyone? Or is everyone just blithely accepting the self-serving scientific cartels' pronouncement that "we are the greatest"?

With a three-year plan already in motion for our total destruction, and with a large key role played by the vulnerability of our electrical power system and its coming destruction, why are not our Department of Energy, National Academy of sciences, National Science Foundation, etc. already under strong Presidential orders to reprioritize their energy research at the greatest speed possible? Why has not the U.S. scientific community already corrected the terribly flawed CEM/EM mess that is taught in our universities and used by our power engineers? Why are

they not conducting a massive Manhattan-type project for energy from the vacuum systems to totally replace the present centralized power system? Then is no other possible solution, once one recognizes that the centralized electrical power system itself is going in be destroyed with very high assurance, within about two years from now. So why are all our scientific efforts actually siphoning off research funds for puerile things which will take decades and will not do the job even then, while enriching and perpetuating the "scientific entourages" driving this sad situation? Since a major part of the problem is the great leap forward of the Russian science of energetics — now 50 years old — and its development of superweapons, then why are our scientists still largely preoccupied with standard electrical engineering and classical electrodynamics — models so hideously flawed and made so antiquated by the progress of physics that they should have been dramatically changed at least three quarters of a century ago?

Why is there no really substantive understanding or definitive work ongoing to lapidly develop means of collecting and using the unlimited free EM energy pouring from every charge and dipole in the universe, including in every EM circuit and self-restricted electrical power system?

Many other similar questions can be and should be raised, but the foregoing questions demonstrate the direction and intent of what should be queried.

### The Ease with which Terrorists Could Obtain WMDs

In facing an asymmetric war launched against us, the availability of clandestine WMD to the terrorists, so that the weapons can be inserted, becomes a primary consideration — along with an extraordinary need to understand the new superweapons and rapidly develop counters and defenses.

An internet search for two search terms: Voz Island in the Aral Sea {lxxiv} and anthrax, will quickly demonstrate the ready availability of WMD to any competent and supported terrorist organization. The Russian biological weapons research and production facilities there were the world's best, appreciably ahead of similar facilities in the West. Hundreds of tons of very high quality biological warfare agents were just dumped on Voz Island from those Russian facilities. Quoting Marshall, Malakoff, and Holden {lxxiv}:

"The United States and Uzbekistan are close to finalizing plans for a \$6 million cleanup of a former Soviet bioweapons facility. The effort is aimed at preventing terrorists from harvesting live anthrax spores from a secret dumping ground.

For nearly 60 years starting in the 1930s, the Soviets released anthrax, plague, and other weaponized pathogens on Vozrozhdeniye (Resurrection) Island in the Middle of the Aral Sea. In 1988, at the end of the Cold War, weaponeers buried tons of a particularly potent strain of powdered anthrax at the site, mixing the bacteria with bleach in steel drums to kill it. But several years ago testers found that some of the anthrax is still alive, and water diversions from the shrinking Aral Sea have since opened a land bridge to the once isolated island. Fearing

that terrorists might try to harvest ready-made bioweapons from the site, U.S. Officials agreed in October to pay for destroying the anthrax and a nearby testing facility."

Actually, for quite some time, any funded terrorist organization that wished a copious supply of the finest anthrax ever made, and wished a strain already resistant to many of our treatments, could just go to Voz Island, pay the natives a little sum, and dig up the dirt in the appropriate part of the dump site, sack it up, and carry it away. Or pay the natives a bit more, and they would dig it up and sack it for the buyer. Wash out the dirt, and one would have all one wanted of the highest grade anthrax spores ever made. It's safe to assume that those terrorist organizations who wanted a copious supply of high grade anthrax already obtained it with relative ease.

Bin Laden also obtained anthrax and other BW agents from other sources {lxxv}, as well as at least a few nuclear weapons.

Other BW agents and nuclear materials were available on Voz Island also, in the same way. And much of that WMD procurement will already have been covertly inserted into the U.S. E.g., where do our agencies think that the extraordinarily high grade anthrax mailed in some letters after 9/11 could have come from? Most probably, it came right from Voz Island.

The mailing of high grade anthrax in letters sent to a few important U.S. targets after 9/11 was not an attack at all, nor was it so intended. The mailings were undoubtedly a small test attack to ascertain the amount of disruption and economic damage that could in theory be obtained by mass mailings simultaneously, through the mail in many locations, to thousands of targets. The results obtained by these little sample mailing tests showed that mass mailings of anthrax powder, in letters sent to selected high level targets, would create chaos, extensive delay, and substantial economic disruption. Here again one sees the coordinated planning toward our economic disruption, damage, and collapse.

### A Simple but Lethal Strategic Strike with Horrific Casualties

As is known, anthrax is highly lethal when ingested or breathed into the lungs. So a simple spray attack on a large metropolitan area, by a small 2-seat Cessna aircraft with two men aboard — one flying and one spraying out the side — could account for from one to three million casualties {lxxvi}, almost all of whom will die. Quoting Betz {lxxvii},:

"A 1993 study by the Office of Technology Assessment concluded that a single airplane delivering 100 kilograms of anthrax spores — a dormant phase of a bacillus that multiplies rapidly in the body, producing toxins and rapid hemorrhaging — by aerosol on a clear, calm night over the Washington, D.C., area could kill between one million and three million people, 300 times as many fatalities as if the plane had delivered sarin gas in amounts ten times larger."

Needless to say, the emergency treatment capabilities of the entire struck area would be completely overwhelmed. In such a case, triage becomes the official policy. Unless the treatment were started immediately for a civilian who inhaled the anthrax, it would be largely ineffective anyway. Once the symptoms appear, conventional treatment is largely hopeless.

Triage is the classification (medical screening and sorting) of patients to determine the need and priority for treatment and transportation {lxxviii}. Triage generally separates patients into four categories, according to the priority for treatment that will be followed:

High Priority (Red): Patients who need immediate treatment and immediate transport in order to survive. (But refer also to category 4 below). Those who need immediate treatment but cannot be expected to survive even if treated go into category 4 (Black), not Red.

Intermediate Priority (Yellow): Patients who will most likely survive but require treatment.

Low Priority (Green): Patients who require little or no treatment or whose treatment and transportation can be delayed.

Lowest Priority (Black): Patients who cannot be expected to survive even with treatment, those who cannot be expected to survive in a mass casualty situation, and those whose vital signs are absent.

In a mass casualty situation with very scarce supplies and nowhere near sufficient mass treatment capabilities, triage becomes necessary and officially applies. That means casualties classified in the Black (lowest priority) category — such as patients already showing the anthrax symptoms, and therefore almost certain to die with or without treatment — will just be set aside, made as comfortable as possible, and allowed to die. There is very little to be gained by treating them with conventional treatment. Even if given every treatment available, almost all of the patients in this category would die anyway. With triage sorting, the very scarce and precious antibiotics and treatments will be reserved for those who have a better chance of surviving if treated.

This is one of the harsh decisions, of the type formerly reserved for military forces in the field under desperate circumstances, which will have to be made for our civilian populace and wounded as well.

### The True Cause of Gulf War Disease

By use of scalar interferometry (as is possessed by the Yakuza) or quantum potential weapons (which the Yakuza does not have, but the KGB/FSB does), in advance of the attack it is possible to trick the immune system of each person in the targeted populace area so that it erroneously "detects" invasion by, say, two dozen different pathogens at once. This is done by simply placing the EM "shadow disease engines" or "shadow precursor engines" (in the virtual level just

beneath quantum level) for those specific pathogenic conditions in weak EM radiation or in quantum potentials focused into the bodies in the area targeted.

The immune system reacts to what it detects, not necessarily to what is actually occurring. Given this deliberate stimulation and the resulting alarming false detection, the deceived immune system desperately spreads its finite assets across those "detected" two dozen invading "shadow" pathogens. And it does detect the interaction of faint precursor engines for the specific two dozen diseases, deliberately radiated into the body and thus interacting with charges in its cellular mass. Such a "spread" immune system is then just about totally vulnerable to any real attack by any normal opportunistic real pathogen in the area — either natural or terrorist-induced — because the immune system cannot marshal any additional resources. In a bizarre way, this is a new form of asymmetric biological warfare, designed to pre-disable the immune systems of the targeted populace, dramatically increasing the effectiveness of the real BW pathogen being introduced (by anyone, including other terrorists).

In the absence of deliberate BW pathogen attack, the result of spreading the immune systems in a targeted area is an extraordinarily heightened vulnerability of the radiated populace to ordinary opportunistic infectious pathogens in the populace's environment, to which the humans in that populace are then physically exposed.

There are always such opportunistic pathogens in one's environment, but usually the immune system can handle most of them with a shrug. But the deceived living body with a spread immune system will be quickly and easily attacked by multiple environmental pathogens, unable to effectively resist, and without the organism's usual immune system's protective resistance {lxxix}. That living body with its spread immune system will shortly develop a whole "cocktail" mix of opportunistic diseases. If the immune spreading intensity is lowered a bit, then only a percentage of the persons with the effect will develop the "cocktail mix of diseases" syndrome. If the immune spreading is lowered even further, then only those persons already having additional "immune system lowering" will be affected.

This "spreading of the immune system" is what was deliberately done to generate the "Gulf War Disease" in some of our soldiers in the first Gulf War. The immune systems of our soldiers in certain areas — already weakened a bit by multiple vaccinations — were spread by hostile forces, as a test to see if our scientists and analysts recognized what was being done. The immune spreading signals were deliberately lowered to the point that none of the French troops — who had refused to take the mix of vaccinations we administered our own forces, and which do reduce the ability of the immune system for some weeks — developed the "cocktail mix" diseases and syndrome, while some of the U.S., Canadian, and British forces who did have lowered immune systems as a result of their vaccinations did develop the "cocktail mix of diseases" called the Gulf War



Syndrome. The natives in the area had not had their immune systems lowered by vaccinations, and so no change occurred in that populace.

Our scientists did not understand it at all. They did not understand it then, they do not understand it to this day, and they will not understand it tomorrow unless forcibly ordered to meticulously consider and experimentally investigate what happens when immune systems are indeed spread in the fashion being advanced, and when specific tailoring to select the targeted populace subset is also used.

Combining immune system pre-spreading with subsequent real BW attack will increase the yield of the attack itself by a factor of at least three. At the same time, other opportunistic infections will also interact very strongly, with little resistance, so that a "cocktail" mix of diseases will ravage the population whose immune systems have been spread.

We point out but do not further discuss the dramatic effect on those treated Triage casualties, if those casualties have pre-spread immune systems. The effectiveness of the treatment will be severely lowered, so that a much greater percentage of those treated will also die.

Our scientists still have not comprehended the higher group symmetry electromagnetic mechanisms by which health and disease changes in personnel in the U.S. Embassy in Moscow were induced during several decades of microwave radiation by the Soviet Union. They do not intend to further try to understand it, and they have simply buried it. It does not matter that three U.S. Ambassadors eventually died as a result, or that hundreds of persons were made sick or developed real diseases. Also, our scientists do not know how to properly investigate and explain the directly related Kaznacheyev experiments {lxxx}, nor do they intend to. As a consequence, they have already guaranteed that BW attack on the U.S. populace under the conditions stated above will be spectacularly successful, while U.S. treatment of the mass casualties will spectacularly fail.

This appalling situation further buttresses our previous comment that, not only will our scientific community fiddle while Rome prepares to burn, but it is also assuring that it burns completely.

### Terrorism by Electromagnetic Biological Warfare

Not comprehending "immune system spreading" or how it is induced, our medical scientists certainly have no knowledge of the electromagnetic use of specific precursor engines for a specific disease — such as anthrax — to directly induce the disease in targeted bodies in an entire great area. Instead of the passive measure of immune system spreading, the same EM weapons can directly transport and induce the precursor engines for developing the anthrax conditions in the bodies in a large targeted populace — such as the greater Washington D.C. metropolitan area, which was the area considered in the referenced Government study involving a spray anthrax attack {lxxvi}.

For example, the exact structural pattern of the necessary disease induction engines for anthrax can be directly "recorded" from the EM emissions of sickened human cells or humans with anthrax. Such ordinary EM carrier emissions do contain those specific anthrax EM disease engines as infolded Whittaker patterns {xxi, xxii} — particularly in the infrared and ultraviolet spectrum, and particularly when both spectral ranges are considered simultaneously (i.e., when a full harmonic interval of radiation is considered, and especially when that harmonic brackets the visible spectrum and the targeted organism is in the dark to remove possible interference from the intervening visible light spectrum). Our scientific leaders have little or no understanding of the Kaznachev experiments, and most of them simply are not interested in understanding them, since it would require thinking in terms of a higher group symmetry electrodynamics, not the common old seriously flawed electrical engineering.

Hence they do not even conceive of the result of electromagnetically enhancing a strike by a BW agent such as anthrax, or of electromagnetic biological warfare, where the disease itself is induced in the body by the exact disease engine that pathogens carry, but mostly without the intervening physical carrier. This "direct induction of the specific disease condition" via tailored induction of the appropriate specific EM disease engines in the bodies of the targeted populace, is another gargantuan force amplifier that can be either used alone or in conjunction with the previous force amplifier of spread immune systems. The U.S. has no defense against it, nor do our medical science leaders and establishments intend to develop such defenses. Terms such as "immune system spreading," "precursor engineering," "precursor disease engine," and "electromagnetic biological warfare" are not even in their lexicon.

As a force amplifier, the combination of the two force amplifiers — immune system spreading and EM BW induction of a single disease simultaneously — can increase the overall casualties from an anthrax attack by from 5 to 10 times what would be obtained by the basic anthrax spray attack of physical anthrax spores alone. An influenza epidemic, e.g., can be made horrific beyond all present expectations, as can a smallpox outbreak, etc.

Further, the present physics of the vacuum already prescribes the basis for precursor engines and their use, including their use in induction or augmentation of disease, or in elimination of disease. Quoting Aitchison {lxxxi}

"Vacuum polarization, in general, alters the effective force law. Forces, in quantum field theory, are understood as being due to the exchange of virtual quanta... In the case of QCD and QFD,... a crucial new feature is that the force-field quanta themselves carry the 'charge' of the force-field, i.e. it is as if the photon of electromagnetism carried electromagnetic charge."

Notice, however, that even Aitchison failed to recognize there were no force fields in space, but only the precursors, and that precursor engineering is involved. Every chemical and biochemical reaction emits characteristic EM radiation — based on the making and breaking of electron bonds etc. as modeled by ordinary

chemistry. Even these radiations could be recorded and played back, inducing disease, without even going into the more complicated explanation of precursor states and virtual disease engines.

The upper limit of the force amplification (more simply, the gain) achievable by precursor attack combinations is of course the limit entailed by the size of the targeted population. Medical and emergency personnel in biohazard protection suits and "deeply protected facilities" are just as vulnerable to this mode of attack as the unprotected populace. So devastation of the treatment teams and facilities also results. Further, even decontamination spraying to kill the anthrax spores would not mitigate the damage already done by EM BW.

The combination of force amplifiers, coupled with an anthrax spray attack even much weaker than that in the Congressional study, can effectively infect and sicken almost the entire population, with nearly everyone becoming casualties and dying. EM BW thus becomes a strategic force amplifier of strategic "total knock-out" strike implications.

In a mass casualty situation, the presence of these force amplifiers will also move the vast percentage of the stricken casualties to triage category Four (Black). Casualties in the Black category will receive no treatment, but will just be allowed to die — even if some vestiges of the treatment teams and facilities survive. The use of the force amplifiers means that a much greater percentage will be classified Black and be allowed to die without treatment under normal triage rules.

But our own National Institutes of Health (NIH) and medical science community — and our own intelligence community in that area — are simply not interested in such bioenergetics weapons already developed and tested. Nor have they apparently done even elementary homework in the area of higher group symmetry electrodynamics. Most do not even recognize the term! Nor have they funded any specific higher group symmetry electrodynamics research in the area, outside the terribly crippled U(1) electromagnetics and electrical engineering, even though the disease force amplifier capabilities of higher group symmetry electrodynamics have already been repeatedly demonstrated, first by the KGB against the U.S. Embassy in Moscow in the former Soviet Union and then by the KGB/FSB in Russia against our troops in the first Gulf War.

The FSB/KGB already knows and plans such force amplifying measures, which will likely be unleashed upon us to dramatically augment any milder conventional BW attacks. The nature and magnitude of the asymmetric war to be unleashed against us is dramatically different from what our society knows, expects, and plans for.

Sadly, most of our present scientific medical research is a vast wasteland as far as any study of (1) scalar interferometry use in disease induction or force amplification, (2) the mechanism used in the decades long EM induction of health changes and diseases by the long so-called "microwave radiation" of the former U.S. Embassy in Moscow, (3) the spreading of immune systems of a targeted

population, and (4) electromagnetic induction of specific disease in a targeted populace via the induction of the specific precursor engine for that specific disease. Further, our medical scientists' knowledge of higher group symmetry electrodynamics appears to be nil. Worse, the organized medical science community appears to have no concern at all over its own total lack of knowledge in such higher forms of electrodynamics. Possibly, a part of this nonchalance may be due to — or influenced by — the important financial exchanges that have long occurred in the past between some NIH scientists and outside industrial cartels intent on keeping medical science within the bounds presently imposed.

But as a step in the right direction, NIH has imposed stricter rules on its scientists with respect to their consulting to, or employment by, outside drug companies which in turn are receiving payments from NIH funding {lxxxii}. The agency has even proposed banning all its scientists from doing any consulting work with drug companies for a year {lxxxiii}, while the agency's investigations continue. Recently a real clampdown has been ordered, effectively closing this questionable avenue. Let us fervently hope that this cleanup continues, so that NIH really does again function as an independent government agency dedicated to the benefit of the American public, not just for the benefit of the big drug companies. At this point, every little bit helps!

#### Unethical Release of U.S-Made BW Mycoplasma

Sometimes, there also appears to have been collusion between the NIH and rather illegal (and unethical) testing on human citizens without their consent. As an example, our NIH leaders are still doing absolutely nothing at all about the modified mycoplasma BW agent {lxxxiv} that our own BW researchers developed in the 1950s to burrow inside red cells, feed off their hemoglobin shells, and dramatically decrease the oxygen transport capability of the red cells in the blood. This modified BW mycoplasma agent was developed, and then it was thinned by about 2,000 times and sprayed into the populace and into the environment by combined U.S./Canadian teams in the 1950s in Canada. It was also sprayed by U.S. agencies in Florida.

These sprayings caused the deliberately-manufactured BW agent to enter the mosquito population and thence into the human population of North America. Indeed, in the cooperative joint U.S./Canada program, the modified mycoplasma agent was deliberately implanted in mosquitoes by the government researchers, and those mosquitoes were then released, to ascertain the "spread effectiveness" of the mosquitoes as disease vectors. That's rather like firing some machinegun bursts at random into a very large crowd, to determine the average pattern of "hits" and "kills".

The author personally contracted that specific biological warfare disease — courtesy of our own BW scientists and the inane officials directing the tests, who carelessly assumed that dilution rendered the mess safe — while in the U.S. Army, residing in Quebec, with duty station at the Canadian Armament Research

& Development Establishment (CARDE) at Valcartier, Canada in 1966-68. I survived three serious hospitalizations in Canada only by the final Herculean efforts of the French doctors in Quebec, who opened both the chest cavity and the abdominal cavity and moved the internal organs around for about 3 hours, aerating the tissues thoroughly and unknowingly killing the exposed surface mycoplasma. After that oxygenation of the tissues, the mycoplasma already burrowed inside the red blood cells survived and then went dormant, slowly increasing over the next three decades. I survived, but with a time bomb ticking away inside my body.

Left with slowly increasing chronic fatigue syndrome over the next 33-year period, I even managed to serve a tour in Vietnam and still no one knew what was wrong. No medical tests or examinations showed what it was. I retired from active military service at the end of 1975, and was employed in the aerospace industry in Huntsville, Alabama.

Then in spring 2001, resurgence of the mycoplasma generated runaway heart fibrillation and a heart attack. When the terrorist attack of 9/11 struck a stunned America later that year, I was still struggling to stay alive from the heart attack, with runaway heart fibrillation, and significant hypoxia from my own prior encounter with a "terrorist BW attack", where the terrorists were our own fellows!

As fate would have it, a colleague with the equivalent of a Ph.D. in biochemistry who checks on me about once a year then called; he has been in many "deep black" programs, most of which do not officially exist. He knew of the mycoplasma BW agent development program and the mycoplasma spraying in Florida and Canada. He immediately recognized that the strange malady contracted in Canada in 1968 was actually that BW mycoplasma.

He also told me where to get definitive information on the web and from Senate hearings, and voila! The puzzle was solved. Finally in Dec. 2001 a Specific lab test was obtained and the chronic BW mycoplasma infection confirmed - after 33 years of puzzlement, doubt, and slowly increasing physical debilitation. The resulting treatment was a year (2002) on antibiotics, which did annihilate the mycoplasma that were hiding in the red blood cells. But it did not and cannot undo the damage already done throughout my body during those 33 years. As my doctor stated, "You name it, it's damaged."

After such a long-term case, one has permanent chronic fatigue, cannot walk very far or stand very long at all, and one takes blood thinner for the rest of one's life to try to prevent strokes and blood clots. One also takes medication to try to control the heart fibrillation and stay alive. The eventual expectation is to go on a pacemaker, then eventually have another unexpected heart attack or stroke, finishing the process. I've also now developed pulmonary fibrosis.

The problem is that, if one takes all the medication necessary to control the heart fibrillation, it also reduces the volume of blood pumping, which places one back in hypoxia, leading to strokes and/or heart attacks. If one does not take the

fibrillation control medication, one reverts back into hypoxia from the fibrillation, which leads to strokes and/or heart attacks. With the usual treatment by well-meaning heart doctors, one is damned if one does and damned if one doesn't. They do not and will not prescribe remedial oxygen, since they do not consider any possible involvement of mycoplasma in heart problems and attacks. Attempts to get the NIH to notify the heart clinics and doctors of this terrible problem have fallen on deaf ears — probably because of the NIH's original involvement in producing the modified mycoplasma and unleashing it upon an unsuspecting and trusting North American populace. Hence the NIH does not wish to admit that such programs ever even took place with its participation.

The only way out of the dilemma is to take the medicine to defeat the fibrillation, and also take extra oxygen to prevent the resulting hypoxia. So I take remedial oxygen and pay for it on my own volition, since the heart doctors know nothing of the modified BW mycoplasma and they do not wish to hear of it. Nor does one's insurance company, Medicare, the Veteran's Administration, etc. Nor does the NIH. All those fine agencies simply wish that the disabled veteran with such BW-modified mycoplasma would just die and get out of the way.

By taking one's own remedial oxygen, one remains just barely above the hypoxia zone, at least until something else unexpected occurs to make things worse. That way, one remains alive a while longer, perhaps even for a few years. Even so, one has acquired a delayed death sentence just waiting to happen at any moment. And one remains with severe chronic fatigue, weakness, etc.

Perhaps then it is understandable that the present author has a very personal interest in that particular B W mycoplasma disease and that set of incidents, and in the continuing gross failure of the NIH to acquaint heart doctors in the U.S. of that nefarious program and what happened. Today there is a direct involvement of this BW-modified mycoplasma in a significant fraction of patents with heart disease, chronic fatigue syndrome, etc. Many of the citizens of the U.S. and Canada already have that BW organism infecting their bodies, like a ticking time bomb waiting to erupt perhaps many years later. To this day, very few hospitals and medical clinics are capable of doing the test that can detect the very specific type of BW-modified mycoplasma.

Apparently the NIH considers any contact on this problem — or a similar BW problem — a hot potato to be handled by its "policy" section (i.e., "spin control" section). Bluntly, the attitude seems more concerned with political control than with saving the lives of countless American citizens who unknowingly continue to be afflicted with that BW-modified mycoplasma, continue to die of its complications, or are disabled and their lives shortened because of it. NIH political orientation seems to be one of the major shortcomings of the U.S. in its required defenses against the biological warfare aspects of the "new " asymmetric war. It also appears that the NIH directly participated and cooperated with the U.S. BW organizations that developed and unleashed the BW mycoplasma in the first place. If so, the misdirected attention of the NIH to cover up will probably

continue, and that will help guarantee much of the success and increased mass casualties resulting from professional terrorist BW strikes against the U.S. populace in the near future

Ironically, that nefarious modified mycoplasma is a strange kind of BW "force amplifier" that the Soviet BW weapons labs initially developed to "soften us up". Eerily, they themselves did not have to introduce it into the North American populace. Instead, we ourselves developed it and — in what has to be one of the most stupid and asinine BW actions of all time — we deliberately unleashed it into our own environment and against our own North American populace. In comic relief, one is tempted to remark that "With friends like that, who the hell needs enemies!"

### No Effective Treatment for Mass Casualties

Sadly, in this present asymmetric warfare problem, we are forced to conclude that the NIH and the Centers for Disease Control will not do the research necessary to develop adequate response therapies and means for quick, effective treatment of mass BW warfare casualties. Seemingly they continue to prefer Category 4 triage — just letting most of the patients die — to developing unorthodox but real mass treatment capabilities. None of the associated agencies appears likely to develop anything innovative in this area, and particularly not a portable higher group symmetry electromagnetic treatment unit {lxxxv} that could effectively treat those millions of Category 4 Triage casualties that will result and die in our cities in the near future.

As we mentioned, there is a precursor EM engine for every disease and every debilitated condition of the living body. That means there is also a precursor EM anti-engine that can be formed, amplified, and introduced into the diseased patient — and that will very quickly reverse the disease condition in situ and cure the disease. Because the anti-engine is electromagnetic and can therefore be amplified, the treatment period can be reduced to circa five minutes of non-ionizing radiation by the amplified specific disease anti-engines. In such treatment, the body's own potentials and fields thus have the anti-engines kindled inside them, and after the treatment is removed, the body's own "activated" fields and potentials — at every level — now continue diminishing and destroying the disease engine, and reversing the patient's condition back to normal.

Further, anti-engine patterns for a variety of expected and known BW agents can be developed and incorporated into such treatment machines, and the machine can then just be "switched" to the appropriate anti-engine-generating radiation spectrum required to treat the patient's BW condition (destroy the patient's specific disease anti-engine and reverse the patient's condition back to normal). The radiations from the machine are after all precursor radiations, whether or not the scientists using the machines know it.

As a further example of U.S. medical orientation, in 1998 the author, with a colleague, tried very hard to persuade the NIH, DoD, USAF, and other federal

agencies to develop a portable unit for such EM mass casualty treatment in a crash U.S. government program, to save millions of lives in the coming asymmetric warfare debacle {lxxxvi}. The EM mechanism proposed would have generated an amplified anti-engine for a specific BW-induced disease. "Pumping" the diseased body with opposing longitudinal EM waves will form amplified anti-engines to a specific disease engine in the stricken body. By then radiating the body with the amplified anti-engine, or simply pumping the body to produce the amplified anti-engine, it overrides the actual disease engine, eroding away the disease engine and the disease along with it, and reversing the physical condition back to normal. Or, in biological terms, this is the secret of dedifferentiation of a diseased or disordered cell or cellular body back to normal cells and normal health. It is quick, it was thoroughly proven in France in the 1960s and 1970s, it was evidenced in Becker's work, and it was documented in the hard French medical science literature. Once developed, this would be a mass casualty treatment therapy far superior to anything presently existing, which could save millions of lives in the debacle now roaring down upon us.

The NIH, DoD, USAF, CDC, and other federal agencies had not the slightest notion of what we were talking about, and we never got out of the "policy" section at NIH, even with the assistance of Congressman Bud Cramer. Not a single scientist in any of those government agencies cared a whit, or even called to discuss the proposal and its novel physical mechanism. Apparently none checked the hard scientific references we cited from the French medical science literature where the basic mechanism had been proven.

None of those agencies had the foggiest notion that the decades-long microwave radiation of the U.S. Embassy in Moscow already demonstrated the use of higher group symmetry electrodynamic "disease engine" signals to directly generate health changes and diseases at will. They had no concept of the use of appropriate amplified "anti-signals" and "disease anti-engines" to reverse and cure illnesses, or that an extended EM can be developed to either induce or cure specific diseases to order as one desires.

They certainly do not comprehend the higher group symmetry operation of the human cellular regenerative system — which is responsible for the body's healing — and have not gone much further than Becker's brilliant seminal studies of that system {lxxxvii}. Unfortunately, Becker's work was limited by his use of U(1) electrodynamics. Otherwise, Becker would have had the "anti-engine" EM healing process then and there. Even so, he almost deciphered the control operation of the cellular regenerative system {lxxxviii}. His EM healing method for otherwise intractable bone fractures survived and is still utilized in some hospitals from time to time {lxxxix}. It is simple to understand: an electrostatic scalar potential (common voltage) decomposes into a set of bidirectional EM longitudinal precursor bidirectional wave pairs — in other words, a perfect set of "pump waves" for creating specific amplified anti-engines for the specific disease or disorder. So Becker's silly little DC voltage across a horrible bone fracture actually contained and initiated a most important and specific mechanism for



producing specific anti-engines and specific dedifferentiation of the diseased cells back to earlier normal condition.

In show what simple potential (voltage) across an otherwise intractable fracture can do, using its component longitudinal EM pump waves, Becker showed that it dramatically affects many of the red cells that arrive in the fracture area, reconverting those affected red cells to a suitable "precursor" cell (more primitive, earlier cell). The "pumped" red cell shucks its hemoglobin and grows a nucleus - this is dedifferentiation, and it is generated by the appositive longitudinal Whittaker precursor wave sets — that constitute the voltage — acting as "pump waves" in the nonlinear optical sense. The pumped bone fracture site has thus become a pumped phase conjugate mirror site, with the input or "signal wave" being the specific physical disorder's "engine" already in the stricken body. The amplified phase conjugate output is the amplified specific "anti-engine" for that specific disease or disorder condition.

In accord with nonlinear optical pumping theory, the energy of the pumping waves then establishes an amplified "phase conjugate replica" signal set. This amplified signal (anti-engine) will then quickly reverse the entire physical red blood cell back along its past travel through time in its past short life (red cells only live about three months). Hence the red cell dedifferentiates back to an earlier stage. The "delta" condition in the fracture site involves bone cells. So the red cell is redifferentiated by the pumping to move forward to the type of cell that makes cartilage. Then it further redifferentiates yet again to the type of cell that makes bone, and that cellular material is deposited in the fracture site, healing it.

In simple language, that is precisely how Becker's bone-healing EM treatment works. The process and its proven experimental success already demonstrates the beginning of the required capability to treat and reverse diseases and physical injury conditions by a peculiar variation of nonlinear optical pumping, using the "disease or disorder engine" as the input signal, producing an amplified "anti-engine". This anti-engine forcibly interacts upon any and all aspects of the cells and the physical body to reverse the situation and restore the body to health.

But the NIH was not interested, even though the elements of this process had also been resoundingly proven by the Priore group in France, in rigorous work funded by the French government.

Eventually the NIH just shipped the entire package over to the DoD (to whom we had already sent the package anyway) because the package mentioned the Gulf War Syndrome and "that was the purview of the DoD". In short, the NIH wasn't interested in what Gulf War Syndrome really was, or in curing it either. So unless it involves drugs or some form of ionizing radiation treatment or some such, our own NIH was not and is not interested in a proven, demonstrated cure for cancer and other dread diseases, accomplished in France in the 1960s and early 70s, with astounding experimental results of thousands of lab animal experiments already rigorously reported in the French medical science literature but resoundingly suppressed today.

The same U.S. agencies lack any understanding of the mechanism that induced the "Gulf War Disease" and the causes of diseases and health changes at the U.S. Embassy in Moscow.

The entire U.S. medical science community is still using an archaic seriously flawed classical electromagnetics of the material luminiferous ether, rather than the more modern higher group symmetry electromagnetics of mass-free spacetime. Consequently it is far more concerned with the immune system's responses which "physically kill the bad guys", or harsh drugs which "chemically kill the bad guys", rather than the cellular control system responses which actually accomplish all healing within the body after the "bad guys" are already dead.

The immune system and the drugs do not actually "heal" anything — not even the immune system "s own damaged cells. The fundamental orientation of American medicine is on physically attacking and killing the pathogens which transport the disease engines, rather than on augmenting and amplifying how the damaged body then regenerates its own cells and reverses its own disease engine via use of higher group symmetry electrodynamics. This strongly prejudices and canalizes our medical science development. It also makes us extraordinarily vulnerable — helpless is the proper word — to the coming mass casualty attacks in our cities and population centers.

But to uphold the status quo, our medical scientists seem quite willing to accept that, for really substantial WMD attacks, triage Black will apply on a massive scale. So they will just let most of the casualties die without any treatment at all. The predetermination to lose all those American lives has already been made, and it seems that nothing will change it.

Indeed, the entire U.S. electrical engineering community itself does not realize that it doesn't even know or apply what electrodynamics in mass-free space is.. In the face of such appalling scientific ignorance for more than a century, it is little wonder that our nation is so terribly behind in understanding what can be done — and is being done — by the terrorists using the primary (precursor) electrodynamics in free space, before its interaction with matter. In short, our analysts have not comprehended Soviet energetics for nearly a half century, and they have no intention of comprehending it now, even though it is being used against us for powerful strategic weapons we cannot counter.

Our national agencies adamantly are not going to develop the proven Priore-type EM treatment or really get to the bottom of Becker's anomalous EM bone fracture healing, because such would not be common old electrical engineering. It would also greatly disturb the pharmaceutical cartels, which have bought American medical science by financing research, medical scholarships, medical university expenses, etc. and by providing "consulting fees" etc. to a variety of scientists in the system. Even though most of those cartel companies are benign or even intentionally beneficial, any threat to their dominant positions evokes a sharp response from their evil 1% entourages. One can easily meet with a "sudden suicide on the way to the supermarket" and such.

Our scientific leaders are not going to demand the correction of that terribly flawed electrical engineering model, which is our single greatest national vulnerability and the one that is being capitalized upon by coordinated terrorism and asymmetric warfare to destroy us in within the three year Operations Phase we entered at about the beginning of 2005. We are going to unnecessarily lose millions of American lives, with most casualties receiving no treatment at all.

Those future wounded Americans would not have to die if such EM countermeasures were intensely developed in portable treatment machines and massively deployed {xc}. We are describing a vast force amplifier that could be developed for the defending nation that has been targeted and very seriously struck. Our own government and scientific community adamantly will not permit its study or development, and will simply "fight to the death of every one of us" to preclude such a desperately needed therapeutic method and capability,<sup>9</sup> despite rigorous scientific proof by the Priore group in the 1960s and early 1970s {xci}, as aforesaid.

### Impact of Immune System Spreading

Weapons such as scalar interferometers in the hands of the Yakuza have given the terrorists a terrible force amplifier of WMD bioweapons that parallels the destruction capabilities of all a modern state's ICBMs, strategic bombers, nuclear subs, aircraft carriers, etc. All without a single ICBM, strategic bomber, nuclear sub, or aircraft carrier.

So for the strategic asymmetric war threat, now one considers — say — three large U.S. city areas hit just about simultaneously by effective anthrax spray attacks, and augmented by EM BW means. One immediately sees the grim picture very probably in store for us. To be conservative, we assume 1 million casualties in each city as the "baseline" achieved by the spray attack pathogen itself. Thus a total of 3 million casualties are obtained in the three strikes, with no other augmentation. However, if immune system spreading were also incorporated simultaneously, the casualties in each city will reach, say, 3 million, almost all of whom will die. That is a total of 9 million American casualties in the three cities — and almost all of those wounded will perish.

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<sup>9</sup>The leopard has not changed its spots. See Betsy McKay, "CDC Aims to Create Experimental Pandemic Bird-Flu Virus," Wall Street Journal. Wed. Mar. 28, 2005, p. B1, B2. Incredibly, CDC as part of the NIH is still engaging in the deliberate production of potentially highly contagious pathogens, capable of causing rampaging pandemics if unleashed or accidentally escaping. All sorts of "reasons" are advanced. A little analysis from the viewpoint of precisely what FSB/KGB bioenergetics can do in such situations would be enlightening — but then neither CDC nor NIH knows anything about bioenergetics, even after four decades of its testing against us to see if we recognize it. Again, with friends like that, who needs enemies!

And that's three small 2-place aircraft, six terrorists, three little agricultural hand sprayers, 300 kilograms of anthrax spores from Voz Island, and a little gas and time.

If, in addition to the immune system spreading, some supporting scalar interferometers are also inducing the same anthrax disease pattern via EM BW, that's now perhaps 5 million casualties in each city area, for a total of 15 million American casualties, almost all of whom will die. If the intensity of the scalar interferometry disease induction is further increased, that's perhaps 18 million or so total American casualties in those three city areas — almost all of whom will die.

Here one directly sees the transition from the kind of estimates our own analysts usually make for BW agent attacks, to estimates that show the more maximum risk of massive strategic destruction and even strategic knockout of the U.S. by the same "front line terrorist troops", due to the advent of the supporting scalar interferometers, immune spreading, and EM BW.

All that would be caused overtly by 6 men, three light 2-place Cessna-type aircraft, 3 little agricultural sprayers which can be purchased at any Home Depot or similar store, and 300 kilograms of anthrax spores from Voz Island — and, in the 9, 15, and 18 million casualty cases — a little force amplification support from three or more scalar interferometers.

But that's not the end of it.

In addition, the contamination of those large built-up population areas will require the ruthless spraying of decontamination agents, killing many thousands more of our own populace. The effectiveness of the decontamination sprays would also be seriously hampered if the scalar interferometers continue their EM BW anthrax induction. None of these kinds of "force amplifier" effects are presently known or taken into account by our analysts and our intelligence agencies. They are designing and planning for the type of warfare they themselves know and expect. They are not designing and planning for the type of warfare that is coming down upon us.

The most urgent "action fact" that should be concentrated upon by our medical science agencies is that most of those casualties are going to wind up as triage Black category 4 patients. Most are not even going to be treated, and so almost all of them will die. The jobs of the leaders of our national health research agencies should be made directly dependent upon them rapidly examining and finding new and revolutionary treatment capabilities that will negate the present "triage 4" massive catastrophe. If they can't or won't do it, replace them!

And there are viable candidates to examine. We have pointed out that the "amplified disease anti-engine" treatment approach is capable of rapidly causing the reversal of the disease, even in those who presently will be assigned to triage Black category 4. Most of those terrible casualties now falling into triage Black category 4 would fall within triage Red category 1 instead, if small portable

treatment devices are available by the thousands. There is simply nothing else out there that will produce such a dramatic savings of human lives, and probably the survival of our nation itself.

### Impact of Smallpox Release

It is almost inevitable that the terrorists also obtained smallpox BW agents — to could anyone who wanted it, had guts and had money. Reliable information already confirms that the terrorists obtained many BW agents, including smallpox by going into the BW labs in former Soviet republics, and buying it. Or one got it from North Korea. Or one just hired very desperate Russian smallpox BW scientists who urgently needed to support their families. Or one got some of it from Voz Island.

The collapsing Soviet state was unable to pay salaries to scientists, generals or soldiers for protracted periods. In desperation to get money to survive, those individuals were forced into extreme measures. Anything there that one wished to buy could be bought, including even a nuclear submarine — see Lunev's book for an incident {ix} where a Russian nuclear submarine was actually purchased. Among other things, one could obtain smallpox agent and the services of Soviet BW smallpox specialists themselves. And of course it included nuclear weapons.

Once smallpox is unleashed in any major city on the planet, it will eventually kill almost one-third the present human population. Quoting Garrett {xcii}:

"If the smallpox virus were released today, the majority of the world's population would be defenseless, and given the virus' 30 percent kill rate, nearly two billion people would die."

Note that Garrett also knew nothing about immune system spreading, or direct "smallpox engine" induction electromagnetically, to augment and increase the kill rate. Smallpox will almost certainly be released against the U.S. populace, probably with EM augmentation. The Yakuza and other terrorist organizations will see to it, with smallpox toxin supplies almost certainly already inserted in the U.S. and waiting, and with the scalar interferometers already waiting to induce immune system spreading and direct EM BW engine insertion in the targeted populace.

As an intellectual exercise, we leave it to the reader to ponder the impact of a few limited smallpox releases in our cities combined with simultaneous wide usage of the force amplifiers (immune system spreading and EM BW smallpox induction) previously discussed, particularly in the grim absence of any effective mass casualty treatment capabilities. The impact is not pleasant.

### The Grim Nuclear Problem

One can also see the damage that can and will be done by dirty weapons (ordinary high explosives surrounded with nuclear materials), spreading nuclear fallout in densely populated areas..

But there is another, even grimmer, side of the story. When the Soviet Union collapsed economically, many nuclear weapons were made available on the black market, and sold to the highest bidder. Some 200 or more nuclear warheads for missiles came up "missing" from the Ukraine alone. Quoting Communist Party leader Petro Symonenko {xciii}:

"Out of 2,400 nuclear warheads which were on Ukrainian territory, the withdrawal of only 2,200 warheads has been verified. The fate of the remaining 200 warheads is unknown."

Further, in 1996 Alexander Lebed, then Boris Yeltsin's national security adviser, reported that some 100 suitcase-sized Russian nuclear bombs were missing. In a donnybrook, some Russian officials denied the existence of such weapons, while others confirmed their existence. The charges and counter charges faded away, and nothing was ever resolved.

Nuclear weapons do not just "go missing" with a shrug of one's shoulders!

All those missing weapons were in fact sold on the nuclear black market. Guess who bought them, and guess where many of them have been inserted already, waiting to go, along with teams trained to detonate them on command. It is almost certain that Bin Laden and Al Qaida succeeded in purchasing some of the stray Russian nuclear weapons. Other terrorists such as the Yakuza and the Aum Shinrikyo almost certainly purchased some of them also.

Terrorist efforts to obtain further bomb grade material such as highly enriched uranium (HEU) have continued. Quoting Bunn and Wier {xciv}:

"The 41 heavily armed, suicidal terrorists who seized hundreds of hostages at a Moscow theater in 2002 reportedly considered seizing the Kurchatov Institute instead — a site with enough highly enriched uranium for dozens of nuclear weapons... Al-Qaida has been actively seeking nuclear material for a bomb and has strong connections to Chechen terrorist groups."

Bunn and Wier {xcv} also point out that:

"More than 130 research reactors in dozens of countries still operate with HEU fuel, and many have no more security than a night watchman and a chain-link fence. Pakistan's heavily guarded nuclear stockpiles face huge threats, from both insiders and outsiders, including large remnants of al-Qaida and the Taliban in the country." ... Comprehensive U.S.-funded security upgrades have been completed for only 22 percent of Russia's potential nuclear bomb material; upgrades for tens of thousands of bombs' worth of material are still incomplete."

At this moment, no one knows how many Russian nuclear weapons have gone "missing" and were sold on the world black market by unpaid Russian generals and soldiers desperate for money to feed their families. No one knows how many Russian nuclear weapons are still "going missing" and being sold on the nuclear black market. Because the terrorists wanted them and had the funds, and because the Russian generals and soldiers sold them to someone, it does not take a rocket

scientist to understand that the two parties almost certainly did business with one another. For more specific information, see Williams {lxxiii, xcvi}.

The Al Qaida has quietly confirmed to the Arab world that it, the Al Qaida, already has inserted seven nuclear weapons in major U.S. cities, and some of the weapons were 200 KT. At least one U.S. author has assessed the Al Qaida as having nuclear weapons in the U.S. {xcvi}. The present author personally suspects the actual number inserted by the Al Qaida and other terrorist organization combined is about double that figure, at least. Bin Laden apparently bought some 20 suitcase nuclear weapons himself {xcvii}, using funding obtained from the Arab world and/or drug production in Afghanistan.

Recall that the KGB/FSB faction which controls the Russian superweapons — and the leasing and transfer of scalar interferometry technology to the Yakuza/Aum Shinrikyo — also controls the previously inserted Russian nuclear weapons in American cities, as well as the associated Spetznaz teams. During this orchestrated two year period we have now entered, somewhere in the United States at least some of those weapons are very probably going to be transferred or sold to the Yakuza/Aum Shinrikyo, and perhaps a few will go to other well-organized groups such as Al Qaida.

The capability exists. It serves the purpose of the FSB/KGB in assuring the destruction of America. It will be done.

As another example, the former Soviet Union also probably inserted anthrax and smallpox agents into the U.S., along with teams to unleash them on command. If so, those assets are also still here, waiting for the order to move. It seems highly probable that at least some of these BW weapons caches will also be released to the terrorist organizations such as Al Qaida, for use in the coordinated coming attacks.

So in addition to the BW threat, somewhere between 14 and 40 already inserted hostile nuclear weapons probably form the "minimum nuclear weapons pool" available to the coordinated terrorists during this two year period. At least that would appear to be a reasonable estimate. We accent that this estimated nuclear weapons pool has — with high probability — already been inserted on site in the U.S. This is another startling capability of the present terrorists to deliver a resounding strategic nuclear knock-out blow against the United States, without ever firing a missile or launching a strategic bomber.

These are examples of the true state of affairs concerning the "War on Terrorism". The great battle of that war has already slowly started, with the zeroing in of strategic Yakuza scalar interferometers on the Yellowstone supervolcano (giving them a "single shot knockout capability against the U.S."), and with the subsequent Yakuza induction of the 9.3 seafloor earthquake on Dec. 26, 2004 that induced the catastrophic tsunamis in Asia. Presently additional U.S. volcanoes are active and rumbling, as are hundreds of seafloor volcanoes. And so the action is slowly beginning. The FSB/KGB will gradually unleash these terrorist assets, and then

their initially sporadic attacks will be deliberately increased, with maximum effort at the very end of the second year and over the first half of that following third year. The intent is to generate a terrible and catastrophic economic collapse of the U.S. two years hence, and then have the Yakuza methodically destroy our cities and every living American.

### Harshness of the Terrible Decontamination Problem

No one has a good solution to decontaminating mass metropolitan areas that have been destroyed or heavily damaged and that are dramatically contaminated with nuclear fallout. Neither does anyone have a solution for decontaminating the distant large nuclear fallout areas surrounding those devastated cities after the nuclear detonations.

Consider the similar terrible task of decontaminating a large city (such as Washington D.C. in that government study), once the city has been sprayed en masse with anthrax by the terrorists. Yes, there are some chemical sprays that will kill the anthrax spores (else they last for a century or more, apparently). But these sprays are very harsh. To spray a civilian populace and area with them is to unavoidably kill a certain number of thousands of one's own sprayed civilian populace. Multiple sprayings of each contaminated area will be necessary, in order to attain the required assurance of sufficient decontamination.

So far as is known, there are no similar sprays available that can remove contaminating nuclear radiation!

Now note the extreme severity of the coming decisions necessary in asymmetric war. In war, high level military commanders have always been faced with agonizing decisions. For example, suppose an Army commander has — say — a dozen divisions under his control. Suppose his war front is attacked by overwhelmingly superior forces, and breakthrough and destruction of his Army is imminent. The commander will have to deliberately sacrifice — say — two divisions (that's 36,000 men) by hurling them into the teeth of the attacking forces, to temporarily halt and delay the attack momentum while those two divisions fight and die. They will be ground up just like hamburger meat, but that delays the enemy onslaught for a precious short time.

That desperately-bought short delay time gives the Army commander the chance to get his other 10 divisions out of there, and back to prepared defensive positions, to live to fight another day. This way, he saves the bulk of his army, by deliberately sacrificing those two divisions. The point is, military commanders have always had to agonize and sometimes deliberately send large numbers of men under their control to their certain deaths. The soldiers sent on such missions also knew when they received their orders that they went to their certain deaths.

Any fool can make a military decision when there is a "good" option and a "bad" option. But when there are only two "bad" options, one is forced to decide for the



"least worst" of the options — even though it entails the deliberate sacrifice of friendly lives to save otl

Now the battlefield is our own cities, and the targeted force is our own civilian populace. That same type of "least bad" decision necessity falls now on the sacrifice of some thousands of our own civilians. Some commander at high level (probably the President himself) will have to assess the situation as so desperate that multiple decontamination sprayings of the anthrax-contaminated area and populace are absolutely necessary, to prevent spreading mass destruction by anthrax carried to other areas, and resulting in the deaths of many millions more. So such an order will have to be given, agonizingly, to spray multiple times (necessary to neutralize the anthrax with a good probability of success).

Each massive spraying might kill perhaps an additional 5,000 or even 10,000 U.S. civilians. Heartbreakingly, these will be the most defenseless and helpless of our citizens, and the ones we would strongly wish to defend to the death with our very lives and with every heartbeat in our breasts. The most vulnerable group will largely consist of persons with hampered breathing or vulnerable immune systems - the old, the feeble, babies, the sick, nursing home occupants, etc.

It has been said that war is hell, and indeed it is. Asymmetric war resoundingly brings that hell home to our civilian populace.

In the past, our troops have mostly ridden out of the protected U.S. fortress/castle to a foreign land, and fought the war "over there", with our civilian populace largely immune and shielded from the horrors of such fighting, particularly when the fighting is intense. Now in addition to our involvement in foreign places, in asymmetrical warfare the major battleground is right here in our own cities, because the major target being attacked by the hostile forces is our civilian populace — including our aged, the infirm, women and children, babies, etc. These devils who are our foes believe that, if they can kill lots of American civilians, babies, etc., they personally acquire a very high religious status from God Almighty. In short, we are up against a fanatical, irrational foe, one who has also unfortunately had two decades or more of almost unrestricted access into the United States, to insert the necessary WMD assets for this "final great Jihad" against us in our cities and homeland.

This "final great Jihad", in the operations phase fought inside our cities and nation, is what is really coming upon us, together with a similar grim dedication to our total destruction by the Yakuza. This is the coming horrible nature of the struggle. We are actually in a clash to the death between civilizations and cultures. Quoting Seib<sup>10</sup>:

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<sup>10</sup> Gerald F. Seib, "Deeper Threat is Being Missed amid Iraq Debate," Wall Street Journal. Wed. 8 Sep. 2004, p. A4.

"The far bigger question is whether the U.S. it engaged in a historic clash of civilizations with the Islamic world. ...The U.S. ... has reached no consensus on a strategy for dealing with a clash of civilizations."

Seib further states<sup>11</sup>:

"The bin Laden goal isn't simply to humiliate the U.S. Nor is it to overthrow the government of Saudi Arabia, or Egypt, or Jordan. The goal is to eliminate those governments — in fact, to eliminate those nations."

According to the present Yakuza/KGB/FSB and international terrorist plans, their actions are expected to reduce the U.S. to lying prostrate and helpless two years from now. With a U.S. nation in utter chaos and ruin, and economically already collapsed catastrophically, a touch-up with the FSB/KGB quantum potential weapons (the most powerful weapons on earth, but possessed by at least five nations) would quickly dud every nuclear weapon, ICBM, nuclear bomber, nuclear power plant, nuclear submarine propulsion system, etc. on the planet {xcviii}. The dudding could be achieved in about 10 minutes, although an hour or so seems to be allotted for it. This is "pulling the dragon's teeth and claws." The conventional strategic military power (ICBMs, nuclear bombs and warheads, and nuclear subs etc.) will be suddenly disabled and effectively wiped out, to exist no more. All that giant strategic apparatus will be just so much trash on the garbage dump of history.

Further, the U.S. society will be enmeshed in total chaos from the intensity developed in its polarizations. The society will be massively spilling its own blood, fighting in the streets, as a result of conversions of the leaders of the polarization areas. In addition, massive "sleeper" conversions suddenly triggered en masse throughout our government leadership, scientific leadership, police, armed forces, large technical corporations etc., will generate a society instantly gone totally berserk. We shall see police attacking cities and civilians, armed forces attacking each other and the civilian populace, etc. The order in all organizations that is necessary for civilization to survive will suddenly have dissipated, never to return again. This is one way in which, by themselves, psychoenergetics weapons can totally destroy an entire culture or the entire Western civilization.

At that point, with a U.S. in total chaos, the Yakuza gleefully plan to participate in the methodical destruction of the United States — the terminal part of the present Operations Phase. It will be a turkey shoot. The Yakuza will be freed to just blast away at will with their scalar interferometers, as they wish, to continue to the full destruction of the United States by destroying cities, infrastructure, and the entire civilian populace.

The intention of this unholy war against us, by both the recognized terrorists and the Yakuza/Aum Shinrikyo is to kill every American (and every Israeli also) —

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<sup>11</sup>Seib, *ibid*.

men, women, children, babies, all of us. It is actually a war intended to totally destroy our civilization - and every living American.

We will see the operational unleashing of this terrible plan, already just beginning lining the two years starting at the beginning of 2005, and gradually increasing in intensity, and finishing at the end of the second year with the catastrophic economic collapse of the United States. Once the economic collapse is complete and chaos is supreme, the sudden dudding of all our nuclear weapons, power plants, and nuclear propulsion systems will be the coup de grace that leaves us a hapless target. The rest of it is the turkey shoot, to simply execute us and finish us off.

In the interim, we will see damaging volcano activity increasing, and very probably we will see powerful tsunamis striking both the U.S. West Coast and East Coast.

If it were to somehow become necessary, the Yakuza will also trigger the Yellowstone supervolcano into violent eruption, destroying the United States and most of North America.

### Summary and Conclusion

In closing, we reiterate some massive strategic capabilities already registered and waiting. Toward the end of 2004, the Yakuza scalar interferometers registered (zeroed in) on the Yellowstone Caldera, the largest supervolcano on this planet. With that "registration" completed, they now can initiate that supervolcano into violent eruption, whenever they wish. Again, the supervolcano's eruption will likely expel more ash, lava, debris, and rocks than the entire Grand Canyon can hold, devastating a large part of North America.

The caldera is overdue for another eruption anyway, so undoubtedly there is increased geophysical stress there already. One should also check the latest findings in geology, and see what happened to North America the last time that Yellowstone Caldera erupted violently. The last eruption devastated quite a portion of North America, killing most of the higher forms of life in a large area.

Now check what happened the last time the somewhat smaller Toba supervolcano in Sumatra, Indonesia erupted violently, about 74,000 years ago. It destroyed all human life on earth, except for a few thousand humans in Africa {lix}. The human genetics shows this sudden "bottleneck" in our genetic variability that sudden occurred about 74,000 years ago {lix}. Also, this is why the present human genetics also shows that "we all came from Africa". And so we did; we are all descendants of that small group left alive in Africa about 74,000 years ago.

In registering on the Yellowstone caldera, the Yakuza has already achieved an additional tremendous "knockout" strategic strike capability against the United States. The Yakuza can indeed wipe out much of North America in a single strike, then finishing the destruction of the United States at its pleasure. There are of

course other volcanoes in the U.S. that can also be stimulated into eruption to add to the chaos and carnage. Several of them are already being "actively tickled".

Again, in 1997 U.S. Secretary of Defense Cohen already confirmed the use by terrorists of electromagnetic weapons for precisely such purposes — initiating volcanoes, generating earthquakes, and controlling our weather and climate. The recent September 2004 "shooting" of one powerful hurricane after the other into the United States, is just one example. The economic damage done by those hurricanes Charlie, Frances, Ivan, etc. has been adequately covered on the national news, so it is already familiar to the reader.

Other powerful capabilities available to the Yakuza scalar interferometers are also possible and therefore registered, such as deliberately generating tsunamis that then strike targeted coastal areas at jet liner speed {xcix}. One such "tsunami looking for just a touch to complete its preparations to happen" is provided by the Cumbre Vieja volcano in the Canary Islands. A large section of the volcano has already broken loose, and threatens to slide into the sea. If so, it will generate an enormous tidal wave (tsunami) that will strike the East Coast of the United States a few hours later {lx}.

For example, quoting Bill McGuire, director of the Benfield Grieg Hazard Research Centre at University College in London {c}:

"A 12-mile chunk of the Cumbre Vieja volcano in the Canary Islands rattled loose during a previous eruption and is at risk of smashing into the Atlantic Ocean, triggering what could be one of the largest tidal waves in recorded history. ... It's not a matter of if, but when."

Obviously, if this "submarine slump-induced tsunami" is induced sharply by Yakuza scalar interferometry, so that the slump occurs with sufficient force, then 8 to 10 hours later a great tidal wave 70 feet or more in height (conservative estimate! Some estimates run 200 feet high) could strike New York and the Eastern U.S. Coast, as well as the Caribbean, moving at some 600 miles per hour. Such a giant tsunami would penetrate inland and devastate entire coastal areas. It is an opportunity that will not have gone unnoticed by the Yakuza, and undoubtedly one or more scalar interferometers have already registered on that target. Again, we strongly stress Defense Secretary Cohen's confirmation of just such use of electromagnetic weapons by terrorists. This is one more example of what can be done by "deliberately evoking, assisting, and directing already available giant geological forces".

So weather engineering and steering and augmenting hurricanes and other storms is just one facet of the real threat. But it is a very important part of the strategic threat, as indicated by Secretary of Defense Cohen in 1997.

Hostile Yakuza fingers are already on the triggers of those zeroed-in scalar EM interferometry weapons, 24/7, waiting for the order to be given to strike. If deemed necessary, this already includes the eruption of the Yellowstone

supervolcano and the massive tsunami hitting the Eastern U.S. seaboard from induced violent eruption of the Cumbre Vieja vulcano.

These two examples are the kind of things that, to one extent or another, are now coming down the pike at us full-speed.

We have also briefly pointed out the horrific casualties that can be obtained by very small and simple anthrax attacks, when bolstered by force amplifiers (immune system spreading and EM BW disease induction).

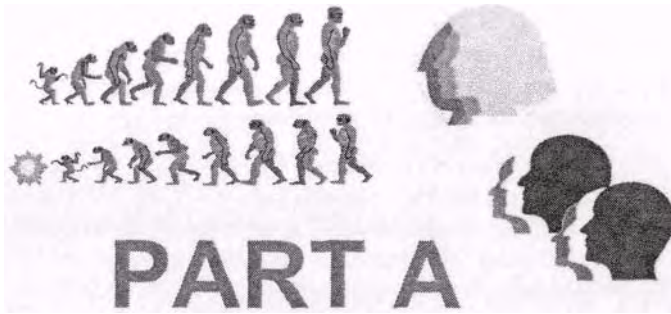
As can be seen, once the superweapons (such as scalar interferometers) already in the hands of the asymmetric warfare terrorists (the Yakuza component) are factored into the analysis, indeed the terrorists have already achieved a strange kind of "rolling thunder" strategic knockout capability against the United States. At least publicly, this major change in the capabilities of the terrorists against the United States has not been analyzed or pursued by the conventional U.S. government agencies and their traditional support analysis agencies. Specifically, the U.S. Congress has not been adequately informed, particularly of the terrible mess that our decrepit old electrical engineering really is, and the consequences of not correcting it when our foes already have done so.

Finally, the reader is strongly urged to review in detail the section on psychoenergetics weapons and scenarios, in the second part of this book. Massive conversions will be used against the U.S. and Western nations, and it alone can in fact wipe out Western civilization. Hundreds of scenarios are available; several examples have been chosen and will be discussed. Massive insertions of "sleepers" personas in massive numbers of individuals in the targeted U.S., Israel, and Western Europe are already underway. The nonmaterial precursor robots, which were launched against us in an eerie and officially undetected giant war against us at the end of 1999 and first few days of 2000, are once again coming at us en masse. Again the reader is strongly urged to check the information on that potent threat in the second part of this book.

When the strategic strikes and new kinds of force amplifiers are factored into the war with terrorism, we find that we now confront a den of raging but carefully controlled tigers, not just a den of small cats using car bombs and solitary humans with strapped on C-4 explosives. Instead, we confront a coordinated strategic threat of awesome and unprecedented power and tremendous damage capability, one that already has the capability to destroy us several times over, and one that is slowly tightening the noose about our collective necks in a deliberate three year schedule ending in our total destruction and oblivion.

## SLIDE BRIEFING PART A: Statement; Preface; Foreword; Summary

OBLIVION 71



## Statement, Preface, Foreword, Executive Summary



## Statement of the situation

- Since the late 1970s, Israel has repeatedly saved the United States from pending destruction.
  - 1970s, saved us from already-inserted Spetznaz teams with nuclear weapons, who would have blown up our cities.
  - 1986, saved us from pending Soviet attack with energetics weapons, particularly scalar interferometers.
  - 1997, saved us from Soviet attack twice, which would have been attacks by the full energetics weapons arsenal.
  - 1999-2000, destroyed millions of nonmaterial robots in subspace inside EM signals, fields, and potentials throughout the U.S.
- Presently, attack is again scheduled, with addition of the eerie new mind conversion techniques of mind war.
- Israel may be able to save us once again, in which case we shall survive. Otherwise, we will be destroyed, beginning about two years from now.



## Mini Wars: Catastrophic end of civilization?

- "I firmly believe that before many centuries more, science will be the master of man. 7% engines he will have invented will be beyond his strength to control. Some day science shall have the existence of mankind in its power, and the human race [shall] commit suicide by blowing up the world."



Henry Adams, 1862



- COMMENT: With perfection and unleashing of psychoenergetics weapons, we have reached that time envisioned by Adams, in little more than a century.



## End of technological species: The final catastrophe (1)



- Some decades ago, we pointed out that a technological (tool-using) intelligent species eventually poses its own self-destruction, by the ever-increasing power of its tools and by its inbuilt inhumanity of one human member for another.\*
- Either the technological species uses its eventual technology to transcend the inhumanity of one human for another, or it uses it to utterly destroy itself because, of its innate inhumanity.
- It is not accidental that we find no signs of intelligent life on other distant planets and in distant galaxies.

## End of technological species: The final catastrophe (2)



- Today the human technological species has developed and tested eerie superweapons that breach the threshold required to move into the final decision domain. We have entered that domain already.
- Accordingly, within the next three years we face coming calamities so appalling they numb the mind and nearly defy the imagination.
- Our most basic human element — the ability to function mentally as a unitary individual or group — may disappear forever, destroying the species.

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\*T. E. Bearden, *The Excalibur Briefing*. Strawberry Hill Press, San Francisco, 1980.  
Updated edition, Cheniere Press, 2001.

## GO: Group coherence and Order (1)



- The functioning of the human species — from the individual to large nations to the entire species — is determined by the ability to group coherently and thus by the ability to order (cohere)
  - Restricted loss of GO in individual is neurosis (sickness).
  - More general loss of GO is psychosis (insanity).
- Neurosis and psychosis also exist in the group.
  - Restricted loss of GO in the group is group neurosis (sickness).
  - More significant loss of GO in the group is group psychosis (insanity).
- Complete loss of GO in the individual or group is total chaos and total insanity (the old notion of hell).



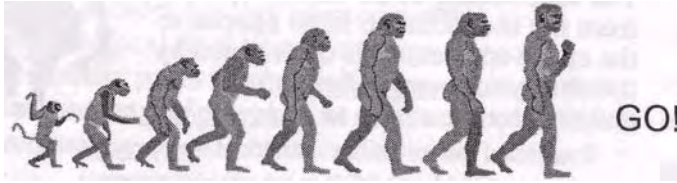
## GO: Group coherence and Order (2)



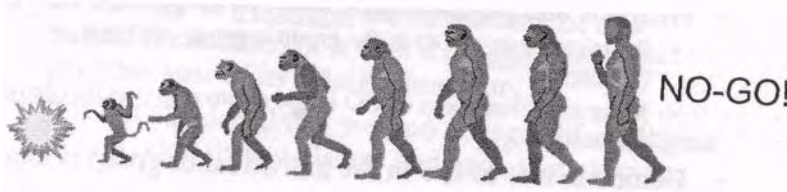
- FSB/KGB developments in psychoenergetics provide the ability to affect, reduce, and eliminate GO in the individual, a small group, a large group, a nation, or a group of nations.
- The technology provides for reducing or eliminating GO at any or all elements of the attacked society. In effect, for complete "dissociation" of the society.
- It is being unleashed, eventually massively, spelling the rapid demise of the U.S. and Western Europe.
- The genie cannot be rebottled. Ultimately it may destroy GO for all human society. If so, the dissociated human species rapidly consumes itself and dies.



# Development and destruction of the human species



Development of humankind (association)

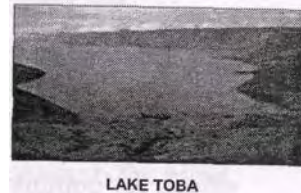


Destruction of humankind (dissociation)

## End of technological species: One possible catastrophe (1)



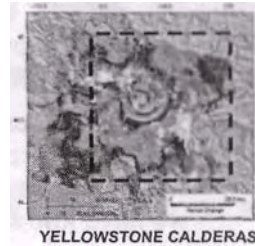
- \* Some 74,000 years ago, a great supervolcano at Lake Toba on the Island of Sumatra violently erupted.
  - Destroyed all humans on earth except for a few thousand in Africa.
- \* All Present humans have descended from them.
- \* Human genetics records the severe "genetic bottleneck" in human genetic variability that occurred.
- \* Hence present human genetics shows that "we all came from Africa".



## End of technological species: One possible catastrophe (2)



- Underneath Yellowstone National Park in the U.S. lies another great supervolcano, with 3 calderas, and it is overdue to erupt.
- In 1997 SecDef Cohen confirmed terrorists' use of "EM weapons" to cause earthquakes, erupt volcanoes, and control our climate and weather.
- The Yakuza zeroed-in large scalar interferometers on Yellowstone in 2004; can evoke its eruption at will, destroying the United States in a single shot.
- The Yakuza generated the 9.3 undersea test quake in Asia on Dec. 26, 2004 which caused the catastrophic tsunamis in Asia, killing more than 300,000.



## End of technological species:

### The final catastrophe (3)



- \* With the rise of energetics, FSB/KGB superweapons have been developed which target material systems, living bodies, and living minds in ways never before thought possible.
- \* To create, engineer, shape, control, or destroy living human minds at will — including all of them on Earth in one strike — uproots the basis for all human order.
- \* By destroying coherence of mind and minds, no human or organization can survive or function.
- \* It poses unthinkable catastrophes exceeding any past disaster the human species has experienced.

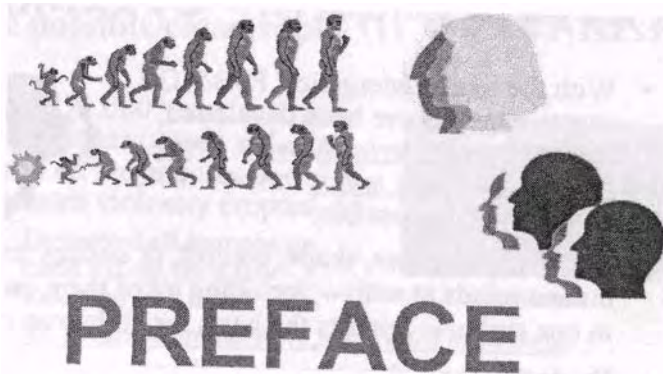


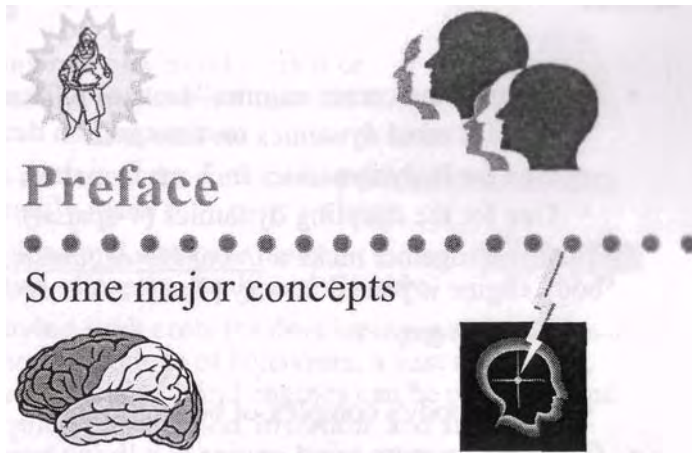
## End of technological species:

### The final catastrophe (4)



- \* These psychoenergetics weapons have been developed, tested, and deployed en masse.
- \* We have entered the last three years of the gradually escalating Operations Phase of asymmetric war against us, which will little resemble anything we have known and experienced before.
- \* We may see catastrophic destruction of civilization itself, and perhaps of all human life on earth.
- \* Our purpose is to point out the elements of the coming catastrophe, in the hope that somehow it can still be avoided or at least lessened in severity.
- \* Otherwise, the coming debacle may soon finish what Toba almost accomplished 74,000 years ago.





## Preface

Some major concepts

Mind war is the use of conversions



- \* The Creator created life and living biological systems.
  - \* Created the process for making life and living systems
  - \* Science can discover and engineer this process.
- \* FSB/KGB scientists have done precisely that.
  - \* From a distance, can insert altered variant of targeted mind in targeted individual's body.
  - \* Can switch between the two ("conversion").
  - \* Changes the behavior designed for targeted individual, or any number, as desired. Conversions against U.S. and others (such as Israel) underway.
- \* Conversions, fractional conversions will play a major role in U.S. economic collapse two years from now, and in the destruction of the U.S. that will follow.



A living mind can be produced and formatted, as can a variant of it (1)



- Make three "precursor engines" (sets of ST curvatures).
  - One for mind dynamics on time axis.
  - One for body dynamics in 3-space matter.
  - One for the coupling dynamics (4-spatial).
- The three together make a living bio-organism, once the body engine is placed in very pliant matter such as:
  - Electron gas.
  - Plasma.
  - Living body's complex of body currents.
- Can place an extra mind-engine in a living human body, using the resident body-engine and coupling-engine.



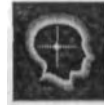
A living mind can be produced and formatted, as can a variant of it (2)



- Can insert the biosystem in an ashtray or in a living body.
- Can insert just the altered mind dynamics (or a fraction of it) in a targeted person's body.
- Switching between original and replacement minds, or between fractions, is called "conversion" or "fractional conversion".
- Conversion dramatically alters individual's behavior, as when multiple personalities switch in a schizophrenic.
- The individual's new behavior is determined by the dynamics designed into the new engine.



## Achieving strategic mind war! (1)



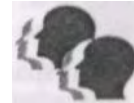
- Making one new mind variant or variant of a major mind fraction is difficult and expensive.
- Once made and the sunk costs paid, unlimited clones are readily made for a penny a copy.
- Can clone and stockpile many millions of copies, easily and cheaply.
- By paying sunk costs for developing initial fractional engines for a range of behaviors, a vast arsenal of deviant fractional mind engines can be produced and stockpiled for selection, insertion, and switching.



## Achieving strategic mind war! (2)



- Decisive strategic mind-war via selected or massive conversions becomes both practical and doable.
- \* "Sleeper" conversions can be implanted in leaders, key personnel, etc. in advance (in an insertion phase).
- \* Gradual switching generates slowly increasing change in behavior and in internal societal friction.
- \* Switching massively all-at-once generates a sudden and permanent collapse of an entire society into utter chaos.
- The massively switched society violently destroys itself rapidly and completely.







# Scenario examples



- \* President's own converted guards suddenly shoot him.
- \* Sudden conversion of President, Vice-President, Congress, Judges, Pentagon leaders and high executives paralyzes the nation.
- \* Police forces suddenly begin attacking civilians. One's own Armed Forces begin destroying each other and our own populace and cities.
- \* The sides of any societal polarization begin vehemently attacking and killing each other.
- \* Strategic weapons operators "go berserk", change codes, launch on our cities, friends, or indiscriminately.
- \* Hundreds of other scenarios are possible.



## Precursor fields and actions:

### The secret of "energetics" science (1)



- » Force exists in mass and mass systems, not in space.
- \* In space, there is only curvature or distortion regions of spacetime, with dynamics.
  - Such dynamic ST regions are force-free "fields" and "potentials" in space.
  - Every field and potential is already a set of energy flows.\*
  - The field-in-space is a dynamic "precursor" state, consisting of energy flow dynamics.
  - A specific "pattern" of the energy flow dynamics in space and time is called an "engine".
- \* Engineering the precursor state (precursor engineering) is directly engineering nature's fundamental free EM energy flows and their dynamics.

\*As shown by E.T. Whittaker in 1903 and 1904, without introducing the source charge. Specifically, EM fields and potentials are sets of ongoing energy flows, freely streaming from the associated source charge(s) producing the field or potential and its energy.

## Precursor fields and actions: The secret of "energetics" science (2)



### \* Precursor engineering:

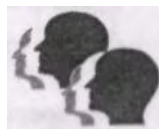
- Basically negentropic: only a little entropy is produced for control.
- Ongoing interaction of dynamic precursor engine with matter produces a directly analogous force engine acting in that matter.
- Controls, directs, switches nature's free energy flows!
- Extends "gauge freedom" notion, in that the energy itself is free, and one only pays for a little switching and control of nature's free energy flows.



- \* Body and its dynamics are dynamics in 3-space.
- \* Mind and its dynamics are EM dynamics on the time axis. Can be directly engineered via EM methods based on quantum field theory's time-polarized photon.

## About models and modeling (1)

- \* Choice of fundamental units in one's physics model is totally arbitrary\*
- \* Consider a model with only a single fundamental unit: the joule. Everything else — including length, time, mass, etc. — becomes a function of energy.
- \* We can even make that fundamental unit a joule of EM energy. A priori, energy can be changed in form to any other form. Everything then becomes a function of EM energy.
- \* Thus time has (and is) a special form of EM energy, just as is mass.



\* E.g., see discussion of such systems of "natural units" in J.D. Jackson, Classical Electrodynamics. Wiley, NY, 1999 in his Appendix on Units and Dimensions.

## About models and modeling (2)



- \* This extends the time-polarized photon concept in quantum field theory, since all dynamics and functions on the time axis can be considered special EM energy dynamics and functions.
- \* Mind operations and dynamics are on the time-axis (they occur in time, not in space). Hence they also are special EM energy dynamics, capable of being directly engineered.
- \* By engineering time-polarized EM photons, fields, and waves, mind dynamics can be directly produced and engineered.
- \* Time-energy-EM dynamics in a given mind can also be directly engineered. Another set can be cloned identically, or another set cloned and altered as desired.
- \* Two variations can be made, inserted in a body, and their connection to the body can be switched between them.

## Precursor engineering and mind conversion (1)



- A specific set of forces in/on matter is an ongoing force (material) engine formed and acting in/on that 3-matter.
- Producing it, there is an ongoing interaction of a precursor (nonmaterial) engine and that 3-space matter.
- In the mind realm (time), there are internal patterns, compressions, rarefactions, etc.
  - \* Compressions of time energy are analogous on the time dimension to "matter", so to speak, in 3-space.
  - The mind interactions can be roughly thought of as analogous to the spatial situation where precursor engines act on "densities of energy called matter" to generate the final "force engines".
- One speaks of "mind energy" and "mind force", to separate thinner intent time actions from the final mind engine that has rotations into 3-space and the body.



## Precursor engineering and mind conversion (2)



- Mental intent acting on denser time creates mind engines on the time axis.
- By relativistic 4-space rotation, mind engines also project coherent EM engines in 3-space virtual state.
- \* Negative entropy operation of charges in the brain and nervous system of a body integrates the coherent virtual mind engines into observable EM engines.
- \* Thus mind engines cohered into observable 3-space engines acting on coupled matter in a body create intentional behavior in that body.
- \* Creation and switching of different precursor mind engines is conversion. Switching of fractional precursor mind engines is, fractional conversion.




## Precursor engineering and nonmaterial robots (1)



- \* For every material robot, there exists a force engine for its dynamics, and therefore a precursor (force-free) engine for them. This precursor engine is a nonmaterial robot a priori.
- \* The precursor engine may be produced alone, then inserted into an electron gas, plasma, or other actual physical system to produce the robotics functioning of a material body.
- \* The precursor engine "nonmaterial robot" can be inserted into distant targeted national facilities, equipment, weapons, etc. and then activated on call, producing material robots that act on call.


# Precursor engineering and nonmaterial robots (2)

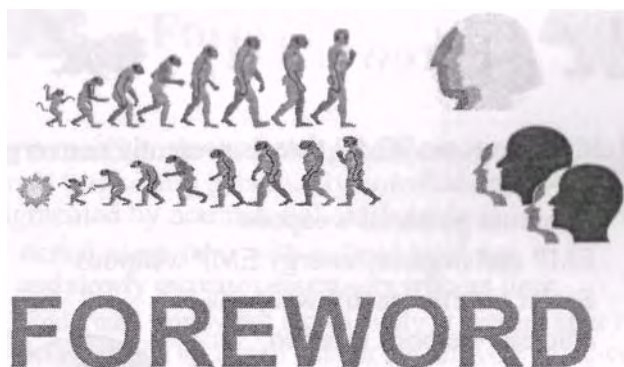


- Start with a precursor engine "nonmaterial robot" and an artificially created mind (dynamic intent engine and corresponding mind engine).
- Coupling of mind (precursor) engine and a precursor robot engine gives a "living nonmaterial robot" (a living and dynamic 3-space virtual state engine robot in 4-space). 
- The living nonmaterial robot engine set can also be inserted into distant targeted national facilities, equipment, weapons, human bodies, etc. and activated in compliant mass into intelligent functioning.
- Energetic robots dramatically extend material robotics.

## What this briefing is about



- Background of energetics weapons is included, with emphasis on conversion, its science, and its intended use.
- Part of what the FSB/KGB developed as energetics superweapons science. 
- Three branches, according to what is targeted:
  - Energetics (against inert physical systems, targets)
  - Bioenergetics (against living biological bodies).
  - Psychoenergetics (against living minds and behavior).
- Dramatic tests in 1996, 1997, etc. are detailed.
- In Russia, energetics superweapons science is still highly classified; operated by FSB/KGB, not armed forces.
- West has not developed energetics or defenses against it.



## Foreword



Strategic asymmetric warfare plan  
of the FSB/KGB with the  
special role of the Yakuza





## Foreword (1)



- \* Multiple strategic WMD threats presently converging to destroy the U.S.
  - Quantum potential weapons
  - EMP and negative energy EMP weapons
  - Scalar interferometry weapons
  - Nuclear weapons inserted
  - Biological warfare threat
  - Bioenergetics threat\*
  - Psychoenergetics threat\*\*
- \* Knockout capability achieved



\* Little understood or appreciated by U.S. intelligence (uses electrical engineer analysts).

\*\* Not understood or believed by U.S. intelligence (no scientific analysts even understand it).



## Foreword (2)



- \* Have passed from insertion phase of strategic asymmetric warfare to a 3-year operations phase
- \* Operational incidents will increase next 2 years inside U.S. while U.S. dragon is increasingly "stretched and bled" overseas economically
- Two years from now, the threats will generate catastrophic economic collapse of the United States, then begin methodically destroying it.
- Will increase damage to centralized electrical power system and destroy it two years hence.





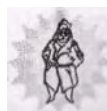
## Foreword (3)



- An immediate threat is the psychoenergetics threat (especially personality conversion) augmented by nonmaterial carrier robots.
  - Actual usage starts with isolated incidents and slowly increases essentially without limit.
  - \* Underway slowly but increasingly at present after recovery delay caused by Israeli destruction of KGB mind-control facilities sometime after mid-1997.
- Main focus of this brief is the conversion threat, with limited background of overall energetics threat.
- U.S. must rapidly achieve and implement counter, or in 2 years probability of our total destruction is very high.



## Japanese Yakuza play a special role as FSB/KGB proteges (1)



- Regard themselves as last of the Samurai.
- Often glorified in Japanese movies and media.
- View our defeat of Japan in WW II and our dropping the atomic bomb on Japan as the greatest dishonor in Japanese history.
- In their view, the only way to erase this shame is to destroy every living American.
- In a giant land scandal in Japan, Yakuza ripped off Japanese taxpayer for about \$300 billion.
- Penetrate all large Japanese companies and government.
- Allied with old Aum Shinrikyo for technical expertise.





## Japanese Yakuza play a special role as FSB/KGB proteges (2)



- \* FSB/KGB proteges for strategic asymmetric war in the U.S., coordinated by FSB/KGB communist faction.
- \* Acquired scalar interferometry super-weapons at end of 1989, along with EMP and negative energy EMP aspects, by leasing them from KGB in Russia.
- \* Can use high altitude EMP or negative energy EMP to knock out centralized power grid at one shot, along with a myriad other electronic systems such as power plants.
- \* Achieved single-shot destruction capability against U.S., by violently erupting Yellowstone supervolcano at will.



## Japanese Yakuza play a special role as FSB/KGB proteges (3)



- Yakuza leased use of scalar interferometers from FSB/KGB in latter 1989.
- Engineered weather over North America.
- Shot down aircraft and missiles, etc.
- Initiated earthquakes and stimulated volcanoes into eruption.
- Proteges for Russian FSB/KGB for internal damage and destruction of the U.S.
- About 1 Jan. 2005, moved into final 3-year operations phase to destroy U.S. Two years to generate incidents, then catastrophic collapse of U.S. economy by destruction of centralized electrical power system etc.
- Then methodically destroy all Americans.



## EMP: Expert testimony to Congress\*



- \* "A nuclear bomb detonated high above the United States could unleash an electromagnetic pulse that would shut down the nation's power grid and, along with it, communications, water supplies and even food transportation."
- \* "If the effect is long-lasting enough, it also could trigger a social collapse that could conceivably cause the deaths of millions of people and, temporarily, push the nation back 100 years... "

Note: Yakuza scalar interferometers can produce strong EMPs anywhere in and over the U.S. at will.

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•As reported by Dee Ann Davis, "Protection not in place for electric WMD," UPI, Mar. 9, 2005, reporting on testimony by Lowell Wood and Peter Pry, respectively member and senior staffer on the Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack. Wood and Pry testified on Mar. 8, 2005 before the Senate Subcommittee on Terrorism, Technology and Homeland Security.

## Yakuza achieved U.S. knockout capability as scheduled



- In last quarter of 2004, Yakuza zeroed-in large scalar interferometers on the Yellowstone supervolcano.
- Violent Yellowstone eruption would destroy 70% of North America. Would destroy almost all of the United States.
- Yakuza achieved a one-shot U.S. knockout capability.
- Yellowstone susceptible, sensitive, overdue for eruption.
- Circa beginning of 2005, asymmetric war against U.S. changed from insertion phase to final operations phase.
- For major demonstration at end of insertion phase, Yakuza generated 9.3 seafloor earthquake on Dec. 26, 2004, producing devastating tsunamis in Asia.



## Hostile quake-inducing usage is confirmed



- \* In 1997 U.S. Secretary of Defense William Cohen\* confirmed that such terrorist quake-induction was occurring. He stated:



"Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations..."

"It's real, and that's the reason why we have to intensify our efforts, and that's why this is so important."

---

\* Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism. Weapons of Mass Destruction, and U.S. Strategy. University of Georgia, Athens, Apr. 28, 1997.



## Alliance in progress



- China, Russia, and India alliance growing.
- Energy is a pressing problem for China.
- U.S. now hampered in access to Russian oil.
  - Helps "bleed the U.S. dragon" in preparation for the hidden program to cause catastrophic U.S. economic collapse.
  - Probably ordered by FSB/KGB communist faction.
- China "bought into" the Russian oilfields and program.
- China and Russia announced they will hold military maneuvers and exercises in China later this year (2005).





## Alliance in progress (2)



- China has 200,000 Chinese in Panama; controls both ends of the Panama Canal. Has access ports in U.S. and this hemisphere.
- China has full complement of energetics superweapons and nuclear weapons.
- China active in North Korean situation. North Korea admits it has nuclear weapons.
- Iran, Syria, Iraq, Afghanistan, Korea are hot spots, will continue to be hot.
- Watch for heat-up of the Taiwan situation, India-Pakistan also. China will take Taiwan by force.
- South China Sea declared as Chinese territorial waters.



## Present Operations Phase



- FSB/KGB/Yakuza Operations phase of the asymmetric war is the three years we are now in. The first two years are critical to safely knocking out the U.S.
  - Yakuza has U.S. knockout capability
  - Shot giant 9.3 seafloor quake 12/26/04 generating terrible Asian tsunamis.
- Plan is centrally coordinated by FSB/KGB die-hard communist faction, which retains and operates the Russian superweapons and is the main power in Russia. Yakuza are FSB/KGB proteges.
- Putin from younger KGB faction; wishes accommodation with U.S. Not the main power in Russia; follows orders.





## Present Operations Phase (2)



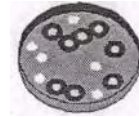
- \* Incidents will begin gradually in the U.S. and escalate. Al Qaida and other terrorists participate as they can.
- Yakuza scalar interferometers gradually destroy U.S. centralized electrical system, some refineries.\* Also use EMPs.
- \* Causes catastrophic U.S. economic collapse. Massive sleeper conversions nullify friendly Israeli quantum potential counters.
- \* Yakuza methodically destroys prostrate U.S. cities, installations, etc. — fulfilling its mission of killing every living American.
- If necessary, Yakuza will erupt the Yellowstone supervolcano to assure total destruction of the U.S.



\* E.g., BP refinery explosion in Texas City, TX in latter March 2005 is suspicious. The fires and explosion followed an FBI warning that terrorist attacks might be made on Texas refineries. No one has considered scalar interferometry could be involved.



## Bioenergetics aspects of the Operations Phase

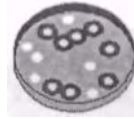


- \* FSB/KGB will "touch up" American immune systems with quantum potential weapons.
  - \* "Spreads" immune system's assets to prepare for dozens of expected "shadow diseases".
  - \* Not much additional assets left for the spread immune system to react to actual pathogens.
- Increases the casualties from BW attacks (such as anthrax sprayed in cities) by a factor of at least three.
- Two terrorists, one light plane, a small agricultural sprayer, and 100 kilograms of anthrax can produce 3 to 9 million casualties in a sprayed city.\*

\* Due to immune spreading, this is three times the results of the official study done as U.S. Congress, Office of Technology Assessment, Proliferation of Weapons of Mass Destruction: Assessing the Risks. Government Printing Office, Washington, D.C., 1993.



## Bioenergetics aspects of the Operations Phase

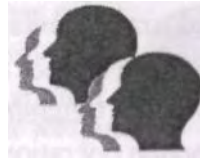


- Anthrax spray attack and other BW attacks by terrorists will thus be unexpectedly devastating.
- The BW threat includes anthrax, smallpox, and many other dread diseases including avian flu and Ebola.
- No truly effective US BW treatment is available for mass casualties.
  - Most casualties will already have symptoms.
  - Will be assessed as triage category 4 (black) and just dragged aside to die without treatment.
- Essential decontamination spraying with harsh chemicals will kill thousands of additional citizens.



## Devastating use of conversions (1)

- FSB/KGB can and does make living minds and biological system engines in the lab.
- Insert a target's mind-clone (with built-in specific behavioral changes) in a targeted individual's body and nervous system, waiting.
- Or insert a fraction of that mind, altered — and waiting.
- Plant such "sleeper" conversion clones in hundreds of thousands of key persons, awaiting activation.



## Devastating use of conversions (2)

- \* Switch selected inserted minds or fractions at will, from a distance.

Switch massively. Behavior of masses of leaders and critical persons instantly alters, causing total chaos.

- \* System begins intensively fighting and destroying itself.

- \* Produces the ultimate "Manchurian candidate" nightmare.

- \* Also counters the friendly little nation previously saving the U.S. with its quantum potential weapons. It suddenly destroys itself in utter societal chaos.



## General scenario and status (1)



- \* Yakuza achieves knockout capability against U.S. (done).
- \* Massive sleeper conversions inserted. Counters strategic defenses (ongoing).
- \* Launch operations phase (operations phase begun).
- \* Stretch out U.S. overseas, increasing economic difficulty, "bleed the dragon" until it is hemorrhaging copiously (begun, will increase).
- \* Increase polarization intensities in our society (begun).
- \* BW strikes, in-place nuclear weapons strikes, inside U.S. (ready)
- \* Weather, quakes, volcano eruptions, tsunamies (set and ready)





## General scenario and status (2)



- Spread immune systems increase casualties (ready)
- Destroy centralized U.S. power system (capability now)
- Massive conversions in; total chaos (insertion begun)
- Catastrophic economic collapse of U.S. occurs (begun and progressing)
- QP strike neutralizes U.S. nuclear weapons (set to go)
- Yakuza interferometers freed (weapons poised)
- Yakuza methodically destroys cities, installations, all living Americans (ready)
- If necessary, Yakuza strikes Yellowstone supervolcano, destroying the U.S. (ready)



## Point and counterpoint (1)



- » North Korea announced it already has nukes.
- \* Will be part of the "disturbances abroad".
- \* Itself stretched, U.S. may consider arming Japan and South Korea with nuclear weapons.
- \* If arm Japan, some of the nukes will pass into Yakuza hands. Yakuza undoubtedly working on obtaining nukes now; almost certainly has some.
- \* Some Soviet-inserted nukes already in the U.S. may be given to Yakuza anyway.
- \* Having scalar interferometers, Yakuza automatically has EMP and negative energy EMP weapons. Will use such weapons also.





## Point and counterpoint (2)



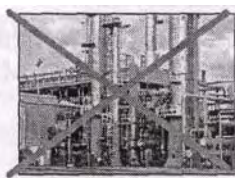
- \* Insertion phase completed.
- \* Nuclear weapons inserted, ready.
- BW capabilities inserted, ready.
- \* Limited conversions are increasing polarizations.
- Massive sleeper conversions inserted or being inserted.
- Yakuza knockout capability achieved against U.S.
- \* Has knockout capability now against U.S. power system.
- Hot spots overseas already heating up.
- Alliance between Russia, China, India.



## Point and counterpoint (3)



- Have entered final Operations Phase now.
- \* Two years until catastrophic U.S. economic collapse and chaos, following destruction of electrical power system, some refineries, etc. by Yakuza scalar interferometers.
- \* Yakuza then methodically completes destroying U.S. in the third year.

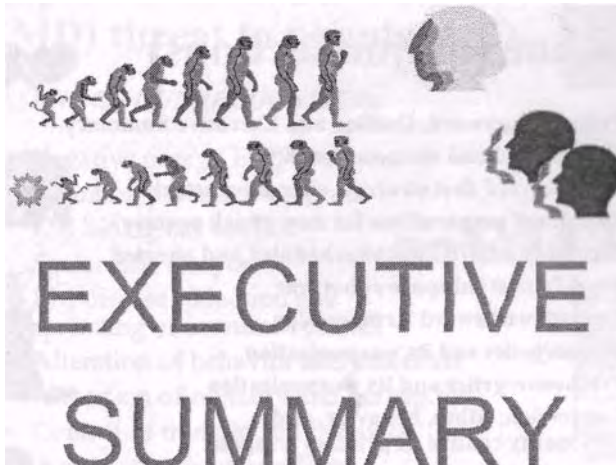




## Why the Yakuza?



- Yakuza consider themselves as last of the Samurai.
  - Greatest shame in Japanese history was defeat in WW II and U.S. dropping atom bomb on Japan.
    - \* Can only erase it by killing every living American man, woman, and child.
- Allied with Aum Shinrikyo, Yakuza leased KGB large scalar interferometers on site in Russia in 1989.
- FSB/KGB uses Yakuza for proteges, to perform the direct "internal" war against the U.S. and its populace.
- U.S. intelligence has no notion of the Yakuza as a formidable force easily capable of destroying U.S.





# Executive Summary

With accepted threat included



## Outline (major sections)



- Preface, Foreword, Outline and Executive Summary
- Background and weapons testing
- Move toward first strategic energetics attack
- Continued preparations for new attack posture
- Second and third attacks scheduled and aborted
- World's first subspace robot war
- Countdown toward Armageddon
- Bioenergetics and its weaponization
- Psychoenergetics and its weaponization
- Conversion: Mind, behavior, and personality control as primary weapon
- Appendix 1: Problems in Western science
- Appendix 2: Technical-Theoretic Vulnerability of Network-Centric Warfare



# Weapons of mass destruction (WMD) threat to populace (1)



## RECOGNIZED TODAY:

- Sabotage and interdiction
- Chemical and biological weapons
- Nuclear materials and weapons
- Powerful explosives
- Assassination, hostages
- Contamination (NBC)
- Shoulder-fired AD missiles
- Terrorism
- Nuclear weapons hidden in our cities (but shunned)



# Weapons of mass destruction (WMD) threat to populace (2)

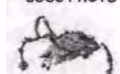


## PRESENT BUT UNRECOGNIZED:

- Negative energy EMP weapons
- Quantum potential weapons
- EM biological warfare
- Scalar EM weapons
- EM disease induction and spreading of immune systems
- Alteration of behavior and emotions
- Alteration of memory and perception
- Control of thought and behavior
- Action at a distance effects
- Causal System Robots (CSRs)
- Massive sleeper conversions



USGS PHOTO



# Russia has long had the inserted ability to totally destroy the U.S.

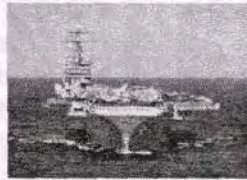
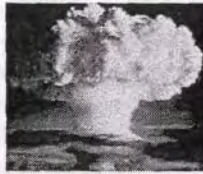


- During Cold War, Soviets inserted nuclear weapons and Spetznaz teams into our major cities and population centers.\*
- Spetznaz teams can detonate the nuclear weapons, producing from 100 to 150 million casualties and destroying the U.S.
- Israelis inserted similar teams and nuclear weapons (including thermonuclear weapons) into Russia. Deterred Russians.
- These hidden weapons were known as "dead man fuzing". Gave mutual assured destruction deterrence with its "assured" capability on both sides (the reason the Cold War was "cold").
- Weapons are still on site in U.S., under command of die-hard old Communist faction of KGB (with new FSB name).

\* Lunev's book gives some of the ways the weapons were inserted. See Stanislav Lunev (with Ira Winkler), *Through the Eyes of the Enemy*. Regnery, Washington, 1998, p. 22-33. Lunev is our highest ranking GRU defector. Common shipping containers are also handy for inserting.



## China is also involved (1)



- China declared South China Sea her own territorial waters
- China will eventually take Taiwan by force
- Has massed missile artillery trained on Taiwan
- Held invasion practice on island near Taiwan





## China is also involved (2)



- China has deployed quantum potential weapons
- Deployed fearsome EMP weapons utilizing negative energy rather than positive energy (based on Dirac sea theory)
  - Strike of negative energy extinguishes all electron currents
  - Duds electrical and electron systems instantly
  - Instantly kills struck bodies (zeroes brain, nerve currents)
  - Instant kill of missiles, aircraft, and electronics in nuclear warheads
- \* Ultimate "death ray"; make large or small, even portable
- \* Chinese "pinged" this analyst, trying to see how he knew the "cold energy" weapons had been deployed



## China is also involved (3)



- \* After China's invasion practice, in mid-August 2001 a 2-carrier-group U.S. task force maneuvered in South China Sea to caution China
- \* The new Chinese negative energy EMP weapons were trained on the task force
- \* Could destroy it within 10 minutes
- \* Chinese military strike aircraft buzzed the ships and carriers, repeatedly trying to evoke U.S. forces to fire on them. Fortunately U.S. didn't.
- \* Had we fired, the task force would have been quickly destroyed as test of new negative energy EMP weapons.



## Estimate on China (1)



- China given favored nation status and use of two U.S. ports during Clinton administration (move to encourage peaceful accommodation).
- Controls ends of Panama Canal.
- Has inserted some 200,000 Chinese into Panama.
- Eventually will outnumber the Panamanians.
- Panama will become a sort of Chinese province.
- China has other ports in the Western Hemisphere.
- Powerfully driven by escalating energy needs. Increasingly competitive for oil, gas, etc.
- New alliance between Russia, China, and India.



## Estimate on China (2)

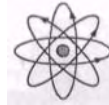


- Has nuclear weapons, and deployed quantum potential weapons and negative energy EMP weapons, the two most powerful weapons on Earth, other than the robots and conversion. Probed this analyst to see if he knew of the negative energy EMP weapons and deployment.
- Preparing both ways; for accommodation with U.S. and also to be able to destroy the U.S.
- Will take Taiwan by force, initiating conflict with U.S. if necessary. Hence needs dead man fuzing of U.S.
- China has probably already inserted some nuclear weapons, BW agents, and the required teams inside many of our major cities and population centers.





## Militant Arab terrorists' asymmetric warfare plan (1)



- \* Terrorists understand asymmetric warfare and WMD.
- \* Learned from "dead man fuzing" between Russia and U.S.
  - \* MAD deters rational opponent such as chess players.
  - \* Does not deter irrational opponent.
  - \* Inserted WMDs provide a knockout capability.
- » Intent to achieve strategic knockout capability against U.S.
- \* Together with Israel, the "Great Satan" is to be destroyed at all costs. WMD, particularly BW and nukes, are required.
- » Part of unceasing holy Jihad by radical Moslems.
- \* Will not end until U.S. is destroyed or until fanatical Islamic groups are nullified.

## Militant Arab terrorists' asymmetric warfare plan (2)



- \* Main objective is to obtain nuclear weapons and clandestinely insert them into U.S. cities; then detonate them.
- \* 30 to 50 inserted warheads needed.
- \* Al Qaeda may have 7 to 15 nuclear warheads already inserted (10 and 100 KT) in 7 to 15 U.S. cities.
- \* May have others for additional insertion.
- \* Supportive Arab states such as Iran are intent on obtaining nuclear weapons capability of their own.
- \* Russians are assisting them to build nuclear facilities.

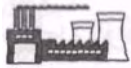


Osama bin Laden



IRAN PRESIDENT  
Mahmoud Ahmadinejad

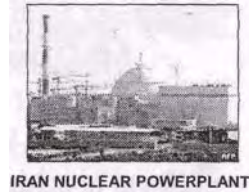




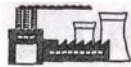
## Mechanism to obtain nukes (1)



- Iran and terrorist-backing states seek nuclear power plants.
- Iran is constructing several such plants; one hidden underground.
- One in particular, being constructed by the Russians, will produce weapons grade plutonium.
- Iran intends to become major nuclear power.
- In 2004 Iran and Russia announced this power plant has been completed



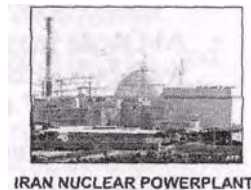
\* Russia now contracted to help Iran finish, and to furnish fuel.



## Mechanism to obtain nukes (2)



- The Iranian nuclear plant could be producing in perhaps a year, since Russia is helping and will furnish fuel.
- Yearly it will produce weapons grade plutonium for 20 to 50 nukes.
- Separation of the plutonium is straightforward.
- In about 2 years, up to 30 nuclear weapons may be available, and more each year thereafter, from that plant.
- Other nukes will be available from weapons grade material of other plants.
- Negotiations to avoid this continue, with little avail.





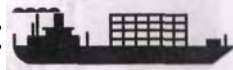
## Mechanism to obtain nukes (3)



- North Korea has some nuclear weapons; is producing nuclear plants. Al Qaeda has a few purchased nuclear weapons.
- Several other Arab nations backing terrorists considering same.
- About 2 to 3 years from now, Al Qaeda and other organized terrorist organizations will have their nukes inserted. May be at half-capability now.
  - Can then utterly destroy the United States.
  - Have purchased at least a few nuclear weapons.
- Have obtained and inserted BW including anthrax.



## On Al Queda plans:



- Insertion of nuclear weapons relatively easy and safe.
  - Used method proven by large drug dealers.
  - 98% of all standardized shipping containers were never inspected anywhere in the world.\*
- Hid weapons in standard shipping containers.
  - Formerly high probability of getting through undetected.
  - U.S. trucking industry and railroads will load the containers at the port and transport them to the waiting terrorist teams on site in U.S.
- Clandestine transport across unguarded and remote wild U.S. borders by teams, and insertion by sea.
- High probability of success in insertion. U.S. borders unsealed; insertion across borders readily possible.
- U.S. has deployed nuclear detectors in U.S. cities, and is acting to prevent or hamper new WMD insertions.





## Terrorists understand economic warfare (1)



\* Quoting Osama bin Laden\* after 9/11:

- "Al Qaeda spent \$500,000 on the [September 11 attacks], while America, in the incident and its aftermath, lost — according to the lowest estimate — more than \$500 billion. Meaning that every dollar of al Qaeda defeated a million dollars, by the permission of Allah!"
- He declared his policy is "bleeding America to the point of bankruptcy, " Joked about U.S. "economic deficit... estimated to total more than a trillion dollars.. "



## Terrorists understand economic warfare (2)



- Quoting Niall Ferguson\*:

"A doomsday scenario is plausible. ..another, bigger September 11 is quite likely... a crisis over Taiwan would send Shockwaves through the international system ... revolutionary regime change in Saudi Arabia would shake the world... detonation of a nuclear device in London would dwarf the assassination of Archduke Ferdinand as an act of terrorism... Like the passengers who boarded the Lusitania, all we know is that we may conceivably sink. Still we sail. "



\* Niall Ferguson, "Sinking Globalization," Foreign Affairs. 84(2), Mar./Apr. 2005, p. 76-77. He is Professor of History at Harvard University, Senior Fellow at the Hoover Institution, Stanford University, and Senior Research Fellow of Jesus College, Oxford Univ.



## The growing U.S. financial problem\*



- Huge spending ongoing: "Guns, butter, tax cuts".

"The federal government's obligations, current liabilities, and unfunded fiscal commitments are over \$43 trillion and rising.... "\*



\* As Zuckerman points out:

- "The estimated net worth of American families is slightly over \$47 trillion, and nearly all of it — 90 percent — would be needed to cover government's current obligations. "\*
- "According to the GAO, it would take real double-digit growth over the next 75 years to pay off our current debt— an impossible task... "\*

\* David Walker, head of the Government Accountability Office.

\*\* Mortimer B. Zuckerman, "The case of the 12 zeros," U.S. News & World Report, Mar. 21, 2005. Zuckerman is editor in chief of the news magazine.

## Refinery explosion in Texas City, TX in March, 2005



- \* Could be scalar interferometry-initiated, in which case U.S. agencies would conclude it's not terrorism (and they did).
- \* Agencies would not recognize scalar interferometry use.
- \* E.g., FBI pulled back its anti-terrorism investigators. Quoting FBI spokesman Al Tribble\*:

"There's no criminal investigation as it pertains to terrorism at this time..,

"We're convinced through our bomb technicians, our personnel that were sent down there, the authorities that are on-site, and the BP officials that there are no reports of any breaches of security . There's been no suspicious activity reported. The blast characteristics aren't consistent with any sort of terrorist-type of threat or activity. So we pulled our people back. "

- \* There have been no new U.S. refineries built in a quarter of a century. What we have are running at 96% capacity, barely able to "keep up" with demand.

\* (McVicker/Hedges, Houston Chronicle).

## Success always attracts others



- Russian FSB/KGB faction under die-hard Communists controlling the inserted Russian WMD weapons and super-Weapons; may be unable to resist the opportunity.
- China may be unable to resist the opportunity.
- Yakuza/Aum Shinrikyo are actively participating.
- Hence there is a growing, loose but immense attack consortium of terrorists, Russia, China, Yakuza/Aum Shinrikyo, North Korea, etc.
- Any major terrorist nuclear attack on the U.S. may draw consortium into full massive attacks on the U.S.
- Probability of destruction of the U.S. is very high; critical point by two years from now (now being Feb 2005).



## Update: Yakuza role In asymmetric war on U.S.



- The Yakuza is a major protege of the FSB/KGB; is coordinated and to be used against the internal U.S.
  - Yakuza regard themselves as last of the Samurai.
  - Greatest shame in Japanese history was our WWII defeat of Japan and dropping atom bomb on Japan.
  - Stain can only be removed by the total destruction of every American man, woman, and child.
- Operations phase: Gradual economic bleed and destruction, particularly of U.S. electrical power system.
  - Centralized system will be destroyed in two years.
  - Simple since scalar interferometers are available.
  - Evokes catastrophic economic collapse of the U.S.
  - Western European economy also collapses in response.
- Yakuza will then destroy U.S. cities and populace at will.



Bottom line: WW III in progress,  
"Peacetime" was insertion phase (1)

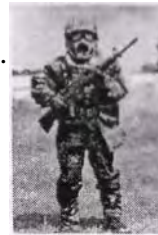


- \* In 2 years or less, with a few more nukes inserted in U.S. cities Al Qaeda will also achieve ability to effectively destroy the United States.
- \* Yakuza already achieved U.S.-destroying capability with scalar interferometers registered on Yellowstone supervolcano and other volcanoes.
- This is WW III. "Peace" is totally eliminated. There are two main phases in this asymmetric war:
  - Insertion phase, when WMD are being inserted. Lasted 20 years. Mistakenly called "peace".
  - Operations phase, when WMD are unleashed.
- We are now in the Operations Phase vis a vis the FSB/KGB, Yakuza, and Al Qaeda.

Bottom line: WW III. in progress.  
"Peacetime" was insertion phase (2)



- Negotiations, statesmanship, UN debates necessary, but are only coverage for ongoing insertion phase and operations phase. We must also:
  - Decisively defeat future WMD insertions.
  - Nullify previous WMD insertions.
  - Unceasingly attack terrorist elements.
  - Develop Priore-type effective EM treatment of mass casualties at highest possible national priority.
- \* U. S. has deployed sensitive nuclear detectors in our cities and population centers, is building a homeland defense, and has taken other measures such as a massive reordering and improvement of intelligence.



## Terrorists' backup WMD capability (I)



- WMD such as smallpox, anthrax, dirty nuclear explosions etc. can severely damage or destroy the United States.
- BW agents made by many nations are available. Insertion continues.
- Anthrax spores available for years on Voz Island\* in the Aral Sea. Those who wanted anthrax, got it easily. Already inserted into the U.S.\*\*
- Smallpox and BW Soviet scientists were available for buy and hire, and multiple terrorist-backing nations bought and hired them.



\* Vozrozhdeniye Island is located in the Aral Sea between Kazakhstan and Uzbekistan. Hundreds of tons of biowarfare agents, etc. were dumped there by the Russians.

\*\* Witness the high grade anthrax mailings (a test, not a strike) after 9/11.

## Terrorists' backup WMD capability (2)



- Significant insertion in U.S. already accomplished, especially anthrax.\*
- A single professional anthrax attack on Washington DC, sprayed from a light aircraft, will produce 1-3 million casualties.\*\*
- If smallpox is unleashed in a single major city, it will eventually kill some two billion persons worldwide — nearly 1/3 the human population.
- Will be unleashed — matter of when, not if.
- The inserted nukes and dirty weapons will also be unleashed.

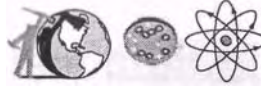


\* Witness the high grade anthrax mailings (a test, not a strike) after 9/11.

\*\* KGB/FSB's immune system spreading increases these BW casualties by a factor of 3.



## Additional threats (1)



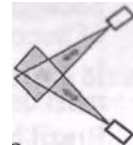
- \* Russian nukes and Spetznaz teams already inserted in U.S. cities, ready.
- \* Can destroy the U.S. at any time.
- \* Originally deterred by Israeli nukes inserted in Russian cities.
- \* Chinese probably inserted or inserting nukes, perhaps BW agents and teams also.
- \* China planning for either accommodation or attack.
- \* Yakuza inside U.S., probable significant insertions, have scalar interferometers and EMP weapons, both long range and portable.



## Additional threats (2)



- \* Yakuza building small, relatively portable scalar interferometer weapons.
- \* Inserting them with teams, to strike nuclear power plants, refineries, and other critical targets.
- \* Already mans long-range interferometers on-site in Russia.
- \* Strongly engineers weather over North America, occasional aircraft shutdown, etc.
- \* Has negative energy EMP weapons also to attack U.S. cities, nuclear power plants, refineries, grid, etc.
- \* Directly generated the 9.3 earthquake causing the recent terrible tsunamis in Asia.





## Additional threats (3)



- Castro has inserted 10,000 guerrillas in U.S. over the decades. Perhaps 5,000 are still viable assets for sabotage and asymmetric warfare.
- Miscellaneous BW, chemical, and guerrilla threats from other foreign assets inserted by other nations (Iran, Syria, Libya, etc.).
- U.S. borders still essentially open; insertion still easy and continues.
- Most standard shipping containers still unchecked.



## Additional threats (4)



- \* Brazil is another unknown quantity; has scalar interferometers and quantum potential weapons.
- \* Met with FSB/KGB in Iceland and signed nonaggression pact. Russians have no intention of honoring it.
- \* In any major strategic strike on the U.S., FSB/KGB must destroy Israel and Brazil due to their QP weapons.
- \* Brazil hired the German scientific leadership of Russia's scalar interferometry development (by the German radar team) after WWII, once the German team was released by the USSR. This initiated Brazil's superweapon program.
- \* David Bohm's visit to Brazil allowed picking his brain on quantum potentials. Brazil then developed QP weapons.



# Slyness of KGB plans: The chessplayer outlook pervades



- \* "Each side secretly develops new means of warfare in order to employ them unexpectedly. History knows many examples how the employment of a new weapon initially gave considerable success because the enemy, caught unawares and not knowing the combat capabilities of the weapon, was for some time incapable of effective counteraction. " [1]
- \* "Of particular importance is basic research aimed at discovering still unknown attributes of matter, phenomena, and the laws of nature, and developing new methods for their study and use to reinforce the state's defense capability. " [2]



- 
1. V. Yo Savkin, The Basic Principles of Operational Art and Tactics. Moscow, 1972.
  2. Portion of a book by Marshall Grechko, deleted from its English translation by specific request of the USSR.

## Strengths on the side of the U.S.



- Large strategic nuclear capability.
- Israel has powerful quantum potential weapons, deters many scenarios.
  - Has repeatedly rescued the U.S. from planned FSB/KGB strategic attacks.
  - \* Has inserted nuclear weapons inside Russian cities, population centers, and key areas.
  - \* Has at least a limited capability against mind conversion and psychoenergetics.
  - Can defend against precursor robots.
- U.S. believed to have some secret weapons of its own; exact types and details unknown.



## Main weaknesses of U.S. could be solved by vigorous action (1)



- Americans do not react to slowly increasing threats.
- Public and officials still not educated as to what is really going on. Other than Cohen's statement, officialdom has been resoundingly silent on superweapons, their development and testing, etc. Intelligence analysis still using puerile old CEM/EE model.
- Historically, American preparation occurs after sudden attack has already occurred (reacting to the cobra's strike).
- Borders need to be sealed; standard shipping containers need to be checked.
- Develop mass casualties EM healing device (Priore type).
- Quickly develop and deploy fuel-free electrical power systems taking energy from the seething vacuum.

## Main weaknesses of U.S. could be solved by vigorous action (2)



- Predominance of archaic, error-riddled classical electromagnetics (CEM) and electrical engineering discards:
  - Precursor engineering and nonmaterial robotics.
  - COP > 1.0 electrical power systems "fueled" by vacuum energy.
  - Engineering understanding of mind, mind dynamics.
  - Understanding of "electromagnetic" induction of diseases, etc.
  - Understanding of psychoenergetics.
  - Production of living minds and living systems.
- Combination places U.S. at grave strategic disadvantage.

\* T.E. Bearden, "Errors and Omissions in the CEM/EE Model",  
at <http://www.cheniere.org/techpapers/>

## Energetics: Precursor engineering (1)

- Present CEM/EE falsely assumes:
  - Force fields in space (exist only in matter).
  - A material ether (falsified since 1887).
  - A flat spacetime (falsified since 1916).
  - That EM fields, potentials, and energy are freely created out of nothing at all, by source charges — totally in violation of conservation of energy law.
  - That static EM fields and potentials are frozen. Instead, they are nonequilibrium steady-state sets of ongoing dynamic, free flows of EM energy.
- Any amount of force or energy can be collected from a given "static" field or potential, if one has sufficient collecting charge, by  $F = Eq$ ;  $W = \phi q$ .



## Energetics: Precursor engineering (2)

- Present EM circuits are made Lorentz-symmetric, by wiring external source of potential into its own external circuit, while current is flowing, as a load to be destroyed
- Professors and texts do not calculate the force-free EM energy field as it exists in space as a precursor of the EM-field of force in matter. None ever have. Ongoing precursor field interaction with charge gives force fields.
- EM energy flow is already free. Force-free EM energy field in space can be engineered by paying a little for switching and control, first making a precursor EM engine with desired dynamics. One need not pay for the energy itself since all EM energy is in freely flowing streams already, pouring from source charges and dipoles.



## Energetics: Precursor engineering (3)

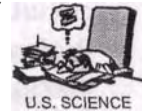


- There is not now, and there never has been, a single EE department, professor, or textbook that teaches calculation of the EM field in space. Instead, they teach calculation of its, force field effect in charged matter, created by ongoing interaction of that real EM field with that charged matter.
- There is not now, and there never has been, a single EE department, professor, or textbook that teaches (or knows) how an electrical power system is really powered. It isn't powered by cranking the shaft of the generator!
- So long as our scientific community ignores the source charge problem (swept under the rug for a century), we will remain at the mercy of those who did correct the flawed CEM/EE model, did calculate force-free EM fields in space, and did develop precursor engineering.

## Tie "New" Strategic Problem (1)



- Nonmaterial energetics robots (self-powering precursor engines) carrying specific spacetime curvature engines (weapons engines) have been fully developed and deployed under the FSB/KGB's die-hard Communist faction.
- Totally new form of asymmetric war: Nonmaterial fighting systems.
  - First war already fought (few days, 1999-2000).
    - \* Small non-Western nation destroyed robot armada of millions of such robots inside U.S. in subspace interior to normal EM field signal envelopes.
- West is 50 years behind, has no defenses against such. Scientific community responsible for U.S. vulnerability.



## The "New" Strategic Problem (2)



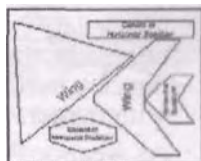
- Can be superior to all other forms of combat.
- Economics dirt cheap (penny a system after sunk costs paid).
- Effectiveness is complete against defenseless targets.
- Targeted Western nations vulnerable and defenseless.
- Western science is woefully inadequate and completely unaware of this technology; has slept for 50 years, intends to keep on sleeping.
- CIA, NSA, DIA, NSC, NAS, NSF, think tanks, etc. appear essentially unaware of energetics precursor robots technology and development.
- Largely unaware of conversion science and threat. Use standard CEM/EE instead of energetics.



## Characteristics of nonmaterial energetics (precursor) robots (1)\*



- \* For every physical system and its functions, there is a corresponding set or "template" of spacetime (ST) curvatures (a set of precursor energy field dynamics), acting on the charges and masses to generate all system forces and their actions.
- \* EM fields and potentials in space are force-free energy fields and specialized curvatures of spacetime. A template of desired ST curvatures and their dynamics can be formed separately, as a harmonic set of precursor bidirectional EM LW wavepairs and their dynamics.



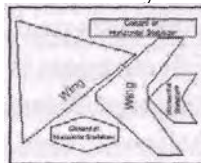
\* Also referred to as "causal system robots".

\*\* Spacetime curvature (energy) may also be taken as change of virtual particle flux of vacuum.

## Characteristics of nonmaterial energetics (precursor) robots (2)\*



- Precursor robot is a template of ST curvature dynamics.
- It is nonmaterial and force-free.
- When it interacts with charged matter, the ongoing interaction produces force dynamics in that charged matter.
- Functions — communication, weapons, surveillance, weapons functions, etc. — can be "built-in".
- The "robot" is then commanded via EM longitudinal wave LW communications systems.
- An entire robot armada of millions of such robots can be assembled and controlled in distant battle.



\* Also referred to as "causal system robots".

\*\* Spacetime curvature (energy) is also change of virtual particle flux of vacuum.

## Characteristics of nonmaterial energetics (precursor) robots (3)



- Spacetime curvature is energy. \*\* Since ST curvature is energetic, the template/robot is a self-powered system, hence a nonmaterial robot fighting system once it interacts with matter.
- As weapons it uses precursor energy engines, not the usual material engines.
- Interaction of precursor engines in matter produces the desired real fighting engine effects. Almost any physical effect can be generated.
- Precursor engine robots easily travel through earth, ocean, space, since ordinary EM fields, potentials, and waves are bundles of LWs and superhighways.
- First making one robot is expensive and difficult; next million copies are 1 cent each.

## Implications of "new" warfare (1)



- \* Demise of the U.S. in 2-3 years is highly probable unless an immediate Manhattan Project is launched under direct Presidential Directive at highest priority and speed.
- \* Nonmaterial robots and switchable sleeper conversions are presently two of the greatest threats, of the several rapidly converging.
- \* But the U.S. will likely be struck by all the threats.
- \* Developing EM treatment of mass casualties is absolutely necessary if to avoid most (being Triage Category 4) just set aside and allowed to die.



## Implications of "new" warfare (2)



- \* To have a survival chance, greatest effort, speed, and closest possible selection of scientists are required.
- \* Close coordination with friendly foreign weapons scientists at the highest level is imperative.
- \* Some nations do have some counter-measures and destroyed the first nonmaterial robot armada attacking in 1999-2000 after being alerted by this analyst and three close colleagues. U.S. has nothing.
- \* One, possibly two nations may have limited capability against conversion technology.

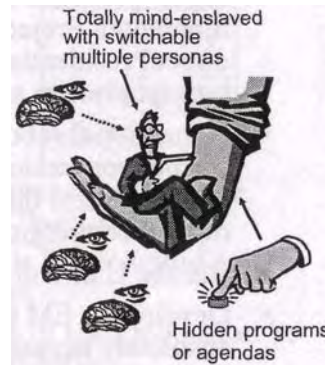




## Conversion: Matured mind control threat capabilities (1)



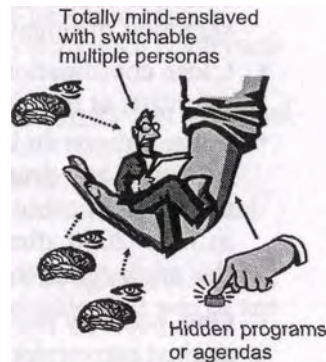
- Secretly entrain or enslave leaders and personnel at any and all levels
- Install secret multiple personalities
- Switch their personalities at will
- Easily defeat detection systems
- Penetrate all compartments
- Compromise all information
- Manipulate and increase polarization intensities



## Conversion: Matured mind control threat capabilities (2)



- Carrier robots with mind-engines access every part of the entire nation
- Augments and completes carrier robot forces with bioenergetics engines and energetics engines
- Because of ease of reproduction (penny each), may be cheaper than any other form of combat
- Possible to subvert a government or culture, armies, organizations, nation



# Conventional secrecy is compromised

- \* "Secure phone" to one's ear with head in the EM field is a direct pipeline into one's entire mind, memory, knowledge, behavior.
- \* Any signal path into a computer etc. is a pipeline also.
- \* Psychoenergetics technology can "search, find, and download" the information rapidly.
  - Pass inside EM fields in matter, thus through walls, safes, vaults, mountains, ocean, earth, etc.
  - Pass through encryption device to raw input information.
  - Scan, copy, download, and transmit the information.
  - Penetrate any meeting, vault, sweep processes, etc.
- \* Limited only by the ability to process the enormous amount of information gathered.



# Nonmaterial robot capabilities

- \* Nonmaterial (precursor energy field) robots with weapons can attack, control, disrupt, destroy
  - Any and all inert matter systems (energetics carrier robots).
  - Any and all living biological systems (bioenergetics carrier robots).
  - Minds of selected personnel (psychoenergetics carrier robots).
- \* Robotic systems can self-install and reside inside matter or EM field, using the charges of that matter or energy of that field to form a functioning "physical" body.
  - Becomes a mine system designed against any target.
  - Its auxiliary robots can be weapons against any and all targets.
- \* Ultimate "mine warfare". Segments of (or entire) physical environment of targeted nation can be filled with deadly weaponry unceasingly attacking targets.



## To understand the robots, new concepts are necessary (1)



- Infolded interior structuring of ordinary EM fields, potentials, and waves as biwave pairs. Normal EM is just "envelopes".\*
- Infolded longitudinal EM waves produce oscillating energy densities (curvatures) of spacetime precursors (basis for engines).
- "Engine" concept (curvatures of spacetime functioning as a system to perform any set of operations upon and in matter desired).
- Precursor engine interacts with mass to produce a real, physical force system (engine) operating on that mass

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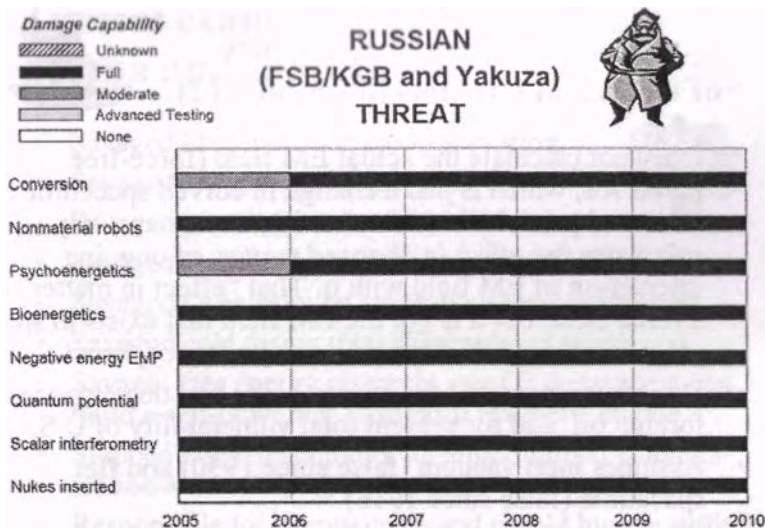
\* Basis has been in physics since two papers by Whittaker in 1903 and 1904.

## To understand the robots, new concepts are necessary (2)



- "Mind engine" concept: Electrodynamics based on scalar EM waves on the time axis, using scalar photons from quantum field theory coupled to longitudinal photons, so that couplets are observed as instantaneous scalar potentials (voltages).
- "Nonmaterial robot" system concept as extension of engine and mind-engine concepts. Robots are by definition self-powering.
- Carrier robots infold numbers of weapon/action robots within their own interior electrodynamics.





## Afterword: Examples of inanity of electrical engineering model (1)



- Has not solved its "source charge problem" in over 100 years. Solution summarized in this brief; basis in physics since 1957 award of Nobel Prize to Lee and Yang.
- Still assumes material ether (and force fields in vacuum) a century after falsified.
- Assumes all EM fields and potentials and their energy are freely created out of nothing at all by source charges.
- Assumes "static" field or "static" potential is frozen. Each was proven to be a set of inexhaustible, ongoing EM energy flows, a century ago, by E. T. Whittaker.
- Doesn't know or teach what really powers an electrical circuit or device. Not a single EE department, professor, or text ever has. NAS, NSF, NAE, universities, scientific societies etc. not acting to correct these known errors.



## Afterword: Examples of inanity of electrical engineering model (2)



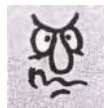
- Does not calculate the actual EM field (force-free precursor, which is just a change in curved spacetime or in virtual particle flux of vacuum); never has. Only calculates the effect in charged matter, of ongoing interaction of EM field with  $q$ . That "effect in matter" is a force field, but it is not the EM field that exists in space prior to interaction. Mass is a component of force!
- Directly responsible for energy crisis and dependence on foreign oil, and for present total vulnerability of U.S.
- Assumes inert vacuum (false since 1930) and flat spacetime (false since 1916).
- Discards Heaviside energy flow component (up to a trillion times as much flow as in Poynting flow).

## Afterword: Examples of inanity of electrical engineering model (3)



- Arbitrarily eliminates COP energy-from-the-vacuum (EFTV) systems, by using circuits that self-enforce Lorentz symmetry (forward emf and back emf forced to be equal).
- That allowed use of simpler (Lorentz-invariant) equations to describe the operation of such "self-crippling" circuits.
- Discarded all permissible  $\text{COP} > 1.0$  Maxwellian systems.
- As a simple analogy, it destroys — so to speak — electrical heat pumps. Normally a heat pump receives and uses excess energy from the environment, thus enabling  $\text{COP} > 1.0$  and also self-powering. Instead, symmetrized EM only permits the EM "heat pump" to be on resistance heating, never using an extra joule of EM energy from the environment.
- This is particularly inane since all EM energy occurs in continuing free flows, never as so many rocks in a rockpile.

## Typical examples of scientific dogma and suppression (1)



- Savaged Meyer on energy conservation.
- Savaged Wegener on continental drift.
- Savaged pioneers of ultrawideband radar.
- Savaged Becker on revolutionary EM healing.
- Savaged Ovshinsky on amorphous semiconductors.
- Savaged cold fusion (600 successful experiments).
- Savages free energy research; any EE department can build a self-powering Takahashi magnetic engine.
- Stopped Fogal technology for superluminal communication and removing noise from digital signals/photos.
- Responsible for energy crisis and untold human suffering.



## Typical examples of scientific dogma and suppression (2)



- Ruthlessly suppressed revolutionary electro-healing (unwittingly using precursor disease antiengines) by French scientists on the Priore team.
- Ignored attempt in 1998 to get U.S. to develop it for quick mass casualty treatment and curing. Most BW casualties now will be Triage Category 4, set aside and allowed to die. Scientific community is responsible.
- Did not solve four decades of EM induction of diseases and health changes in personnel in Moscow Embassy by precursor field "disease engines".
- Most scientists think we are "meat computers". Have no notion of time-as-energy, scalar photon, or thought and mind operations as time-axis EM dynamics.



# Additional observation



- Key persons who could engender understanding of the threat science are viciously attacked and vilified.
- Agents and agents of influence involved, per gaming and disinformation techniques. Murder also used.
- Dramatically reduces probability that U.S. government and scientists wake up to what is ongoing.
- Performed by U.S. cartels and also FSB/KGB.
- For KGB, it is part of the overall attack support plan\* to insure that the U.S. sleeps on, preoccupied with Afghanistan, Iraq, Iran, North Korea, oil, reactors, etc.

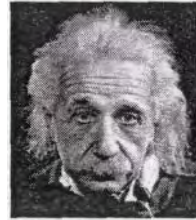
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\* An important strategic attack plan will always have an accompanying deception plan. The more important the attack, the more elaborate the deception plan. Obviously the FSB/KGB has a comprehensive (and very successful) strategic deception plan.



## A famous quote:

"I know not with what weapons  
World War III will be fought, but  
World War IV will be fought with  
sticks and stones."



Albert Einstein.

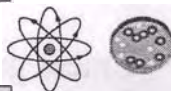
- The weapons used in the ongoing WW III are indeed strange and previously unknown in the West.
- Scientifically we have been asleep for decades, it seems, as to the nature of these eerie weapons.
- We must react swiftly, for there is little action time left.



## Conclusions (1)



- World War III is in full progress.
- Multiple total destruction plans against the United States now implemented and converging.
- \* Success probability very high (maybe 98%).
  - Inserted nukes and BW; scalar interferometers, QP weapons; negative energy EMP; robots; mind control; and conversions.
  - \* U.S. scientists unaware; few defenses.
  - ♦ Time is very short — less than 3 years; and two year critical period with extensive conversion strikes.



## Conclusions (2)



- U.S. is unacceptably vulnerable:
  - Appalling age and flaws of EM models and electrical engineering.
  - Naivete, dogma, and cartels in scientific community, industry, government, medical community, etc.
  - Intelligence community and political community unaware; have inadequate scientific advice. Thus ineffective.
  - Nation essentially unprepared for the type war ongoing.
- Main decision makers lack knowledge of eerie new weapons technology and how to defend against it.
- Cannot even recognize nature of an attack (Button, Svoboda, Hess, Thresher, Gander, Challenger, Titan, TWA-800, Yellowstone, Asian tsunamis, etc.).





## Conclusions (3)



- Unless galvanized by strongest possible Presidential action and crash project to develop counters, U.S. will likely be destroyed in 3 years or less.\*
- Unless forced in strongest manner, the organized U.S. scientific community will not only fiddle while Rome burns, but it will also assure that Rome burns completely.



\* Now in 3-year Operations Phase. At end of 2 years is the decisive point.



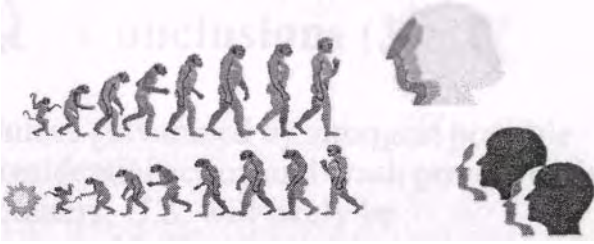
## Desperate U.S. needs



- Presidential Decision Directive in strongest terms.
- Force scientific community to correct CEM/EE model.
- Expunge 1% evil entourages in national labs, etc.
- Countermeasures against conversion, precursor robots.
- U.S. quantum potential weapons, precursor robots.
- Mind-engine production capability.
- Fuel-free energy-from-the-vacuum power systems.
- Portable Priore-type medical treatment units.
- Sealing of borders and inspection of cargo containers.
- Briefing of Congressional leaders and decision makers, mayors, governors, legislatures, police forces, etc.
- Tailored briefing of American populace and news media.

(SLIDE BRIEFING CONTINUED)

## PART B: Background and Weapons Testing



# BACKGROUND AND WEAPONS TESTING



## Background and weapons testing

Russian and Western science compared



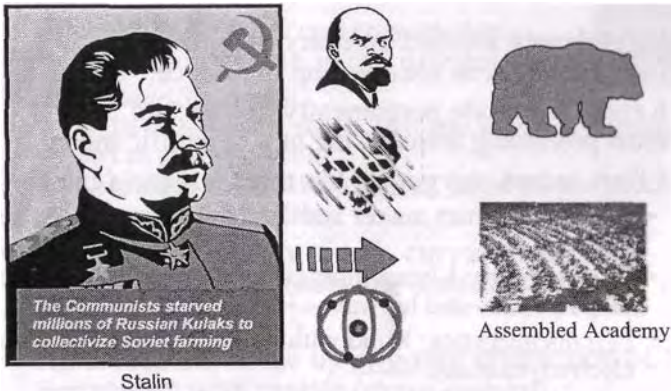
# Section contents



- \* Russian science
  - Energetics
  - ◆ Bioenergetics
  - \* Psychoenergetics
  - \* Engines and robots
  - Carrier robots
- Western science
  - \* Serious flaws
  - Electrodynamics
  - \* Electrical engineering



Stalin's dictum in 1945 removed any resistance from his scientific community



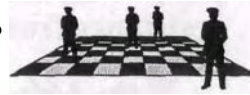
"The destiny of communism has been frustrated by the U.S. development of the atomic bomb. That is not the last great technical breakthrough. The next one will be Soviet! You will provide me with that great new technical breakthrough at all speed, or I will have your heads. Do / make myself clear, comrades?"

## Response to Stalin's iron dictum

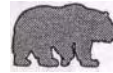


- \* Soviet Academy of Science desperately sought anything anomalous and not followed up, which could be weaponized for a new "great weapon".
- \* Search included mind, living bodies, inert matter areas.
- \* Reviewed, corrected scientific models, e.g., CEM/EE.
- \* Hauled in copies of scientific literature journals of the West, from Day 1, to analysis institutes by shiploads.
- \* One institute alone had some 2,000 Ph.D.'s and their staffs (translators, secretaries, etc.).
  - Reviewed each page of each journal issue. Selected interesting items previously not followed up.
  - These reviewed by best nonlinear scientists in the world.
- \* Energetics born in 3 to 4 years; used to design weapons.

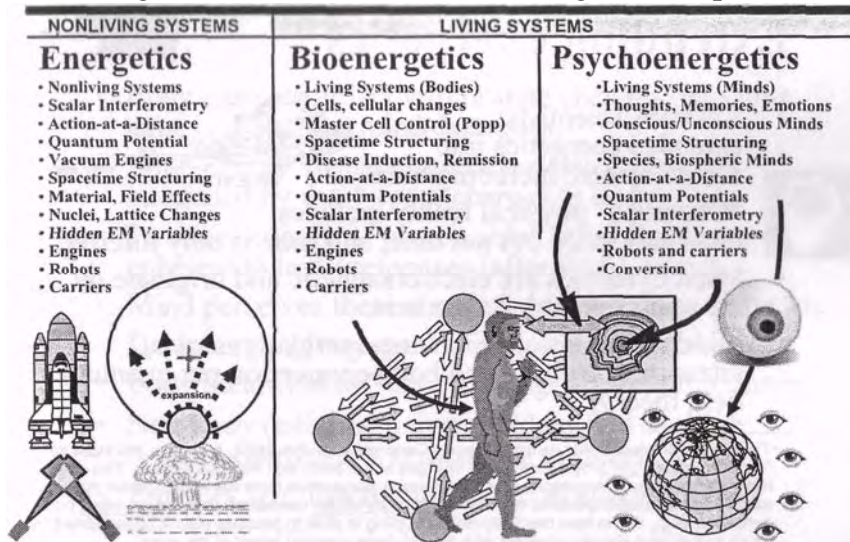
## Energetics: Result of this great Russian effort



- Immediately focused on everything important that had not been followed up in science.
- Kept this attitude permanently; researched most promising areas, using new scientific models.
- Effort named energetics; has three targeting categories:
  - Energetics: Inert matter and EM fields, potentials, and waves.
  - Bioenergetics: Living biological matter with biofields, biopotentials, and biowaves.
  - Psychoenergetics: Mind with its scalar (time-polarized) electrodynamics).
- Expanded QFT's scalar and longitudinal photons; couplet observed as scalar potential (voltage).



## Targets of the three branches of energetics weapons



## Origin, of term "energetics"



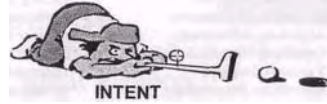
- \* Energetics term recognizes energy as the primary thing in the universe.
  - Rankine first used it.
  - G. Helm revived it, separated it into an intensity factor and an extensity factor.
  - Ostwald in 1893, 1895, and 1901 raised the energetics concept to the forefront.
- \* In general relativity terms, curvature of spacetime is essentially the same as "energy" or "energy in motion".
- \* All forces are made by ongoing interaction of ST curvature\* with matter (mass-energy).

\* In particle physics, substitute "change in VPF of the vacuum" for "ST curvature".

# Extending energetics



- Russians scientists extended energetics into n-dimensions, including time.
- "Observed" physical reality includes mass and space but not time, and time is only inferred.
- Mind dynamics are electromagnetic and originate on the nonobservable\* time axis.
- Mind dynamics are EM time-energy dynamics, interacting with a mind/body connection per quantum field theory.



\*Time is not an observable, even in theory. Coherent time dynamics, however, are input as 3-space virtual state projections to the charges in the brain and nervous system. The charges integrate coherent integrations of virtual 3-space projections from the mind's intent dynamics, outputting observable photons which are EM observables correlated to coherent intent time dynamics. E.g., that is how the body-mind coupling is able to produce output observable EM nerve spikes and signals coherent with mental (time domain) intent of the mind.

## Mind-to-body coupling mechanism

- Time is not an observable, hence mind is not observable.
- Mind changes on time axis project virtual state intersections in 3-space, into the coupled nervous system.
  - \* Charges in body system provide coherent integration of virtual state changes into observable photons.
  - \* Intent changes thus integrated into coherent observable EM, with small integrating delay.
  - \* Occurs in "spike" areas (in dendrite discharges).
- Coherent integration produces intent-coherent EM discharges in body's nervous system.
- Servomechanism control theory then applies in body.

# Body-to-mind coupling mechanism

- \* Body changes reflect virtual state changes onto time axis, into coupled mind dynamics.
- \* Time-energy virtual changes are also coherently integrated by the 4-space charges in body.
- \* Produces coherent "perceivable" mind changes coherent to body responses (after small delay).
- \* Mind perceives these changes, compares, readjusts, etc.
- \* Delay in total loop gives sense of personal identity.
- \* Body identified as 3-space changes coherent to intent.
- \* Non-body (external universe) identified as those 3-space changes not responding to intent.
- \* Provides self, functioning in the world of non-self.



## Energetics for superweapons



- \* Khrushchev demanded 100% ABM defense.
- \* Kapitsa replied to Khrushchev:



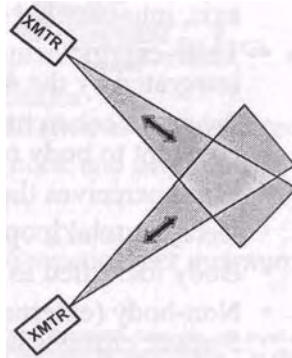
"If a means of total neutralization of foreign missiles is to be found, it can only come from a group of new principles in physics, called energetics."



# Basic Energetics



- Scalar interferometry
- Longitudinal EM waves
- Precursor engines
- Negative energy EMP
- Quantum potential
- Nonmaterial robots
- Carrier robots
- Mind control
- Mind conversion
- Building living systems including living minds



## Selected energetics tests



- Scalar interferometry
- Kill of U.S.S. Thresher
- Deep underwater explosion
- Disease inductions at U.S. Embassy
- Tesla Shields (ABM defense)
- Cold Explosions
- Weather engineering
- Flameout of aircraft engines
- Kill of Arrow DC-8
- Kill of Challenger
- Kill of TWA-800
- Quantum potential test
- Mind tests — Button, Svoboda, Hess, etc.
- Robot tests, robot strategic war



## Whittaker's inner electrodynamics\* shows the precursor form in space (1)



- \* Combination of the two Whittaker papers "decomposes" all EM fields, potentials, and waves into a far more fundamental longitudinal EM biwave dynamics. The latter highly complex continuous flow structure is the engine or dynamic form of patterning of the field, potential, or wave and its dynamics as it actually exists in mass-free space.
- \* A longitudinal wave is an oscillating change of energy density in spacetime, hence an oscillating ST curvature. Whittaker's structure is actually the form in which the spacetime precursor EM potential, wave, or field exists in space.

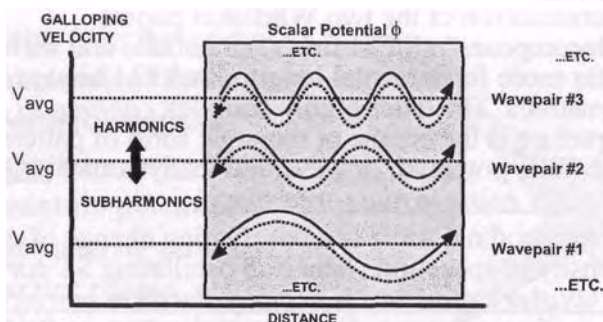
\* The 1904 Whittaker paper initiated superpotential theory. The 1903 paper has been essentially ignored.

## Whittaker's inner electrodynamics\* shows the precursor form in space (2)



- \* The fields, potentials, and waves taught in CEM/EE are the integrated charged matter fields, potentials, and waves existing only in charged matter when it is being acted upon by the Whittaker precursor engines.
- \* Integration of the precursor EM engine structure occurs only in charged mass.
- \* Combination of the two papers provides basis for a directly engineerable unified field theory (UFT), more fundamental than what is used in the West in its century-old electrodynamics and electrical engineering.
- \* Soviets began intensive development of this UFT immediately after WWII with a series of Manhattan-style projects.

# Precursor scalar potential in space: longitudinal EM biwave sets

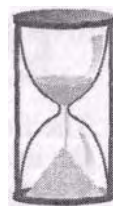


The Precursor Structure Is:

A harmonic set of longitudinal wavepairs. In each wavepair the two waves superpose spatially, but travel in opposite directions. The two are phase conjugates and time-reversed replicas of each other. Thus they comprise a coupled longitudinal wave and antiwave. The photons must be coupled into photon/antiphoton pairs (gravitons) by a strong application of the distortion correction theorem of nonlinear optics. Each wave in the biwave pair is a galloping wave. Each wavepair is a standing electrogravitational wave.

Note: Think of the oscillations as velocity modulations. The time-density carried by the waves is oscillating.

## Quantum field theory

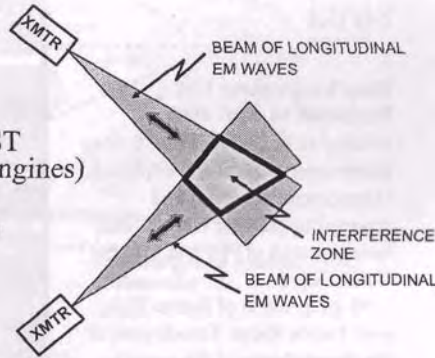


- Four types of photons (polarizations): x, y, z, t.
- Two (x, y) are transverse photons (familiar).
- Third is longitudinal (z) photon; energy oscillates to and fro along line of propagation. Bunches and thins energy density of space; is dynamic oscillation of curvature of spacetime.
- Thus is basis for engineerable integrated unified field theory.
- Fourth is scalar (t-polarized) photon. Energy oscillates to and fro along the time axis. Dilates and compresses time; hence is dynamic oscillation of curvature of spacetime.
- Scalar and longitudinal photons are individually nonobservable; but the combination of the two is observed as instantaneous scalar potential (common voltage).

# Scalar interferometer\*

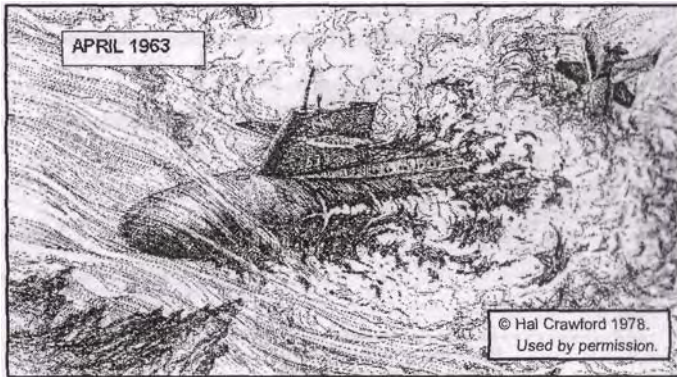


- Energy effect in distant zone may be either heating or cooling, and slow (rising) or fast (explosive).
- Specific patterns of local ST curvature and dynamics (engines) may also be produced.
- Beams easily pass through the Earth or the ocean, whose internal fields and potentials are superhighways for internal longitudinal EM waves.



\* Proof is given in M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," J. New Energy. 4(3), Winter 1999, p. 76-78.

## Khrushchev's First Demonstration Strike

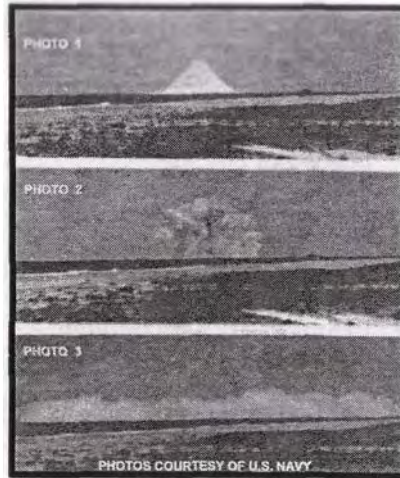


- Kill of the U.S.S. Thresher. With her electronic controls jammed in the hash of a scalar interferometer whose IZ surrounds it underwater, the hull of the doomed submarine implodes when she reaches crush depth.
- The internal electronic jamming signals arise from the local spacetime everywhere within the sub (within the IZ).
- USS Skylark, companion surface ship nearby and in the "splatter" zone of the IZ, had multiple electronic systems fail, etc. totally anomalously.

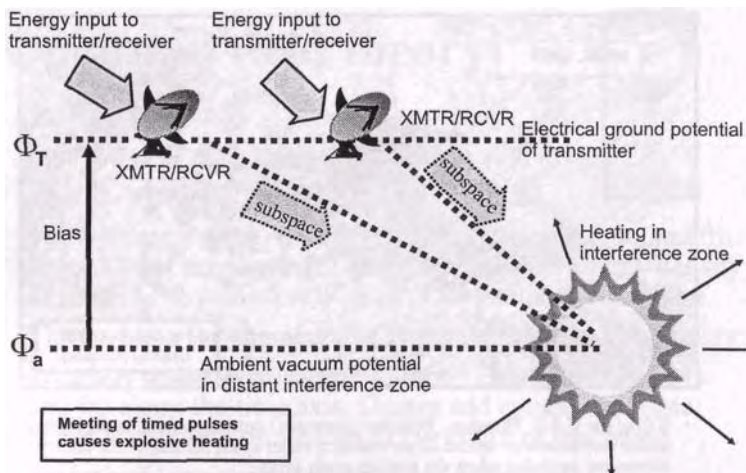
# Khrushchev's Second Demonstration Strike

Deep Underwater EM  
Explosion 11 Apr. 1963  
(similar to this photo set of a deep  
underwater nuclear test explosion)

- Phenomena observed and reported by passing U.S. jetliner; later reported to FBI and to U.S. Coast Guard
- 100 miles north of Puerto Rico, over Puerto Rican Trench (one of the deepest parts of the ocean)



Deep underwater nuclear burst, demonstrating same water phenomenology produced by Khrushchev's second demonstration on 11 Apr. 1963, the day after killing the U.S.S. Thresher.

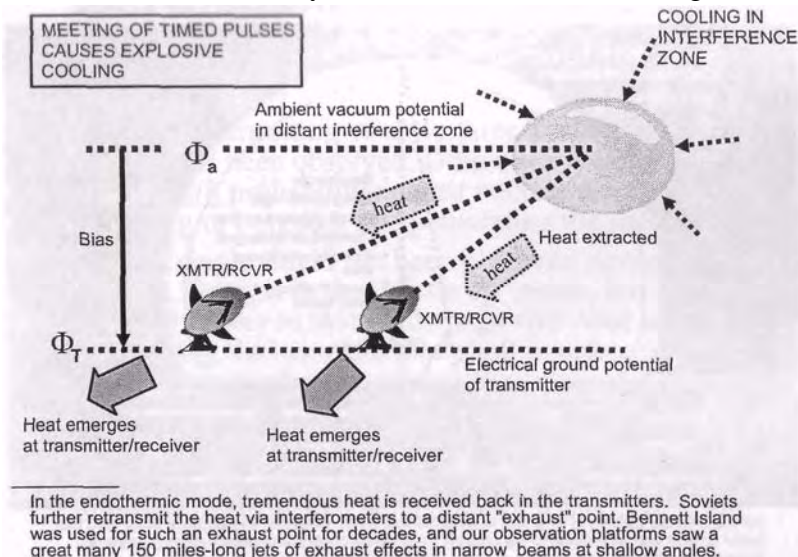


Scalar interferometry in the exothermic (heating) mode.

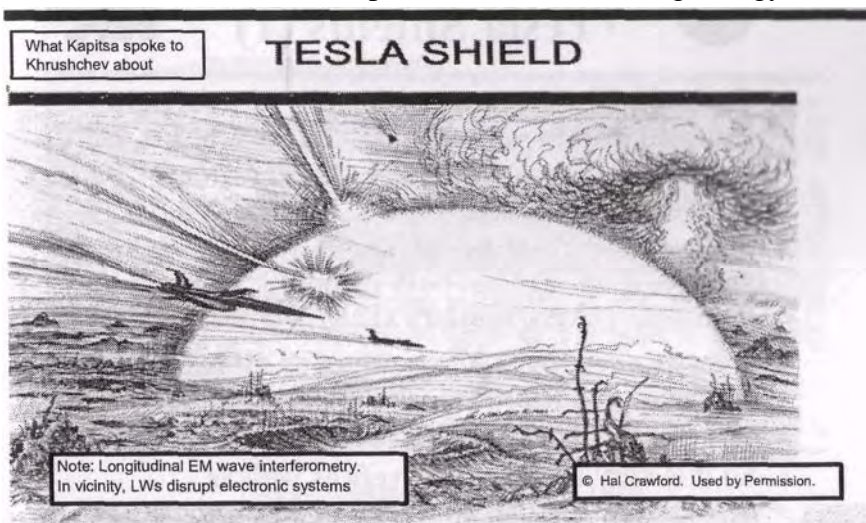
We may call the internal Whittaker electromagnetics a special kind of "active subspace", which it is. One can infold as many such "subspaces" inside normal EM fields, potentials, and waves as one desires. Hence one can engineer n-dimensional space with the new electrodynamics.



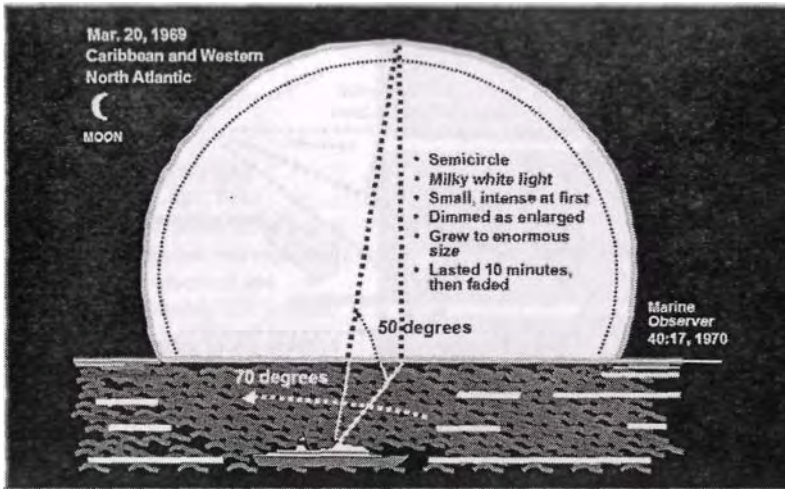
## Scalar Interferometry In The Endothermic (Cooling) Mode



## The Tesia Shield: Hemispherical Shell of Glowing Energy



## GIANT MISSILE SHIELD TEST SEEN BY PASSING SHIP'S CREW



Al the intense energy is in a thin hemispherical shell, between the outside edge and the inner dotted line. A missile or an aircraft passing through that intense energy zone is instantly destroyed, electronics duded, warheads exploded, crew instantly dead, etc.



## Special note on Tesla Shields (1)



- Tesla shield placed over a friendly site defends against incoming missiles, aircraft, warheads, etc. If shield is made with "one-way out engines", defensive site can fire out and nothing can fire in.
- Unrestricted Tesla shield placed over a hostile site, "bottles it up" against both incoming and outgoing vehicles, rockets, artillery shells, bombs, etc.
- If made one-way in, the bottling up allows outside firings into the targeted site, which itself cannot fire out. Useful against ICBM silos and similar targets.
- So it is very useful offensively as well as defensively. E.g., an entire naval task force at sea could be "bottled up" and neutralized.



## Special note on Tesla Shields (2)



- Multiple interesting of up to three Tesla shields (shells) has been observed. Dramatically increases weapon kill probability against nuclear weapons incoming or outgoing and penetrating the shields.
- A giant single shield has been observed covering Atlanta, Georgia in the "bottle up" mode, but with minimal power so that no damage was done to aircraft penetrating the hemispherical shell in either direction.
- A shield is effective as a cover over hostile ICBM fields, to destroy their hostile ICBMs shortly after launch, while permitting some Russian ICBMs to penetrate and destroy the complex. Russia has had a dramatically effective launch phase ABM system for decades. So has the Yakuza, on-site in Russia.

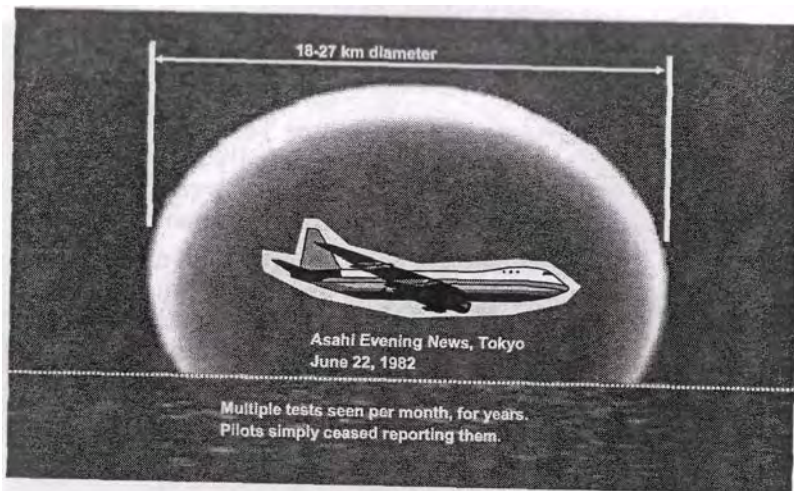
Nick Downie's sighting from the ground of distant Soviet missile shield tests.

## Missile Shield at Sary Shagan

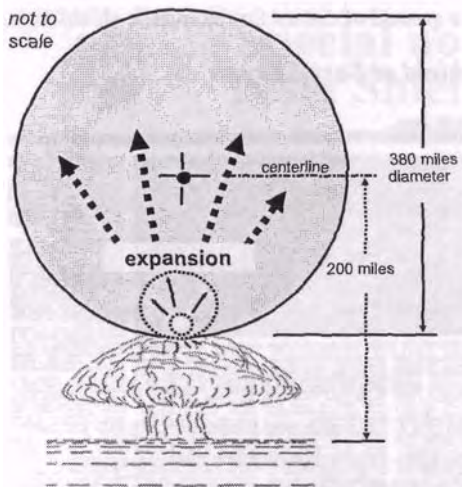


London Sunday Times, 17 Aug 1980





Typical shield test, northern route to Japan, seen by passing airliner  
Many dozens of such tests have been seen and reported. Sightings were so common that pilots simply quit reporting them.



#### Sequence of Events

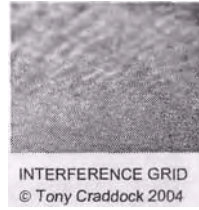
- Geyser of water rose rapidly from surface, mushroomed out
- Reached 60,000 feet altitude in about two minutes
- Brilliantly glowing small globe then appeared in top of cloud
- Globe increased greatly in size and altitude
- Reached diameter of 380 miles
- Center reached altitude of 200 miles

#### What They Were

- Superpotential interferometry using longitudinal EM waves
- Cold explosion just above surface (as antiship, antifleet)
- Smaller, higher density spherical shell (Tesla globe) for one-on-one shooting
- Larger Tesla globe for large area targets such as ICBMs coming in from midcourse
- Use in, out of atmosphere

Endothermic (cold) explosion off the Kurils 9 April 1984 Followed by a second test, an expanding globe of light, added in the exothermic mode to demonstrate rapid serial switching between weapon modes

# Weather engineering by scalar interferometry



- Steering jet streams
  - Make low pressure areas (endothermic)
  - Make high pressure areas (exothermic)
  - Move highs and lows, to entrain and steer the jet streams.
  - Displace cold air from Canada, warm air from Gulf, and where they meet provides sharp fronts and very violent weather.
- \* Sharp bends in jet stream add angular momentum.
  - Spawns tornadoes, powerful storms
  - Generates much atmospheric energy and lightning.
  - Ignites fires in those areas deliberately kept dry.
- \* Maneuvering and pulsing high and low pressure areas vertically above each other produces sudden downbursts.
- Many combinations and variations available and tested.



## Vivid example of detailed structuring in weather engineering interferometry



Courtesy Scott Stevens, [www.weatherwars.info](http://www.weatherwars.info)



## A few weather engineering signatures\*

- Giant radial clouds, twin giant radials.
- Sharp "grid" of interference patterns across a giant section of the sky.
- High structure in a giant radial or twin giant radial.
- Moving giant radial or twin (crews sometimes just use a major highway, and move it along over that highway).
- Anomalous aerial booms, flashes, etc. when "adjusting a grid" or structure of a giant radial.



• A large number are documented in T. E. Bearden, "Soviet Weather Engineering Over North America", a 45-minute videotape. Huntsville, Alabama was a chosen "turning point" to turn the jetstreams up along the Southeast coast Hence over the years we observed hundreds of cases and signatures and photographed dozens of them. Other present-day examples are on [www.cheniere.org](http://www.cheniere.org) Also particularly see Scott Stevens, [www.weatherwars.info](http://www.weatherwars.info).

## Giant radial with internal structuring



Photo by Sean MacLachlan

## Directional radial with structuring



Photo by Sean MacLachlan

## Structuring in clouds



Photo by Marcia Stockton



## More structuring in clouds



Photo by Marcia Stockton

## Complex structuring in clouds



Photo by Marcia Stockton

## Spectacular spiral cloud (1)



Photo by Tony Craddock

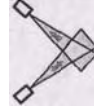
## Spectacular spiral cloud (2)



Photo by Tony Craddock

## Other geological uses of scalar interferometry (1)

- Deposit energy in fault zones, to generate piezoelectric pressure.
  - Quakes result when plates slip.
  - Slow increase gives great overpressure prior to slip; hence it produces a very strong quake such as 8.0 or even 9.5.
  - More rapid increase usually gives less overpressure prior to slip; hence medium quake.
  - Quite rapid increase gives tremors and small quakes to medium quakes at will, adjustable as to size.
- Deposit energy in rocks in a no-fault zone, and produce anomalous quakes. Can vary magnitude by adjusting rate of energy deposit, as stated.



## Other geological uses of scalar interferometry (2)

- \* Initiate volcano eruptions by deposit of energy.
- \* Use sea-bottom quakes to generate tsunamis.
- \* When this first written (July 27, 2003), many volcanoes around the world were suddenly active. Still are.
  - Too many to be totally "natural".
  - Were and are Yakuza practice and preparations.
- Highly destructive 26 Dec 2004 tsunamis induced in Asia were a Yakuza opening test for the Operations Phase of asymmetric war just entered. They induced the 9.3 quake in the ocean floor causing the tsunamis.



# How much does weather and climate affect us?

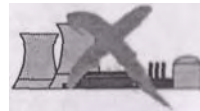


- "40% of the \$10 trillion U.S. economy is affected by weather and climate changes. "  
Conrad C. Lautenbacher, U.S. Undersecretary for Commerce, Wall Street Journal. July 28, 2003.
- So in addition to what nature's changes already do, those weather and climate changes being augmented or implemented by hostile weather engineering are costing us a bundle.
- This is a special kind of war, waged in "peacetime", and frightfully damaging economically.
- Weapons use confirmed in 1997 by SecDef Cohen.
- It's just part of the ongoing "bleed the U.S. dragon".

## Other uses of scalar interferometry (2)



- Deposit negative EM energy in fault zone where pressure is rising naturally or by weapons.
  - Extracts energy from the zone.
  - Reduces pressure, avoiding pending quake.
- \* Deposit EMP in control center of power plant,\* such as a large nuclear power plant. Controls are dudded, runaway reactor core risks meltdown.
- \* Generate explosions in refineries, oil fields, either of positive energy or of negative energy.
- Use in bioenergetics and psychoenergetics attacks as well (produce engines in the interference zone).

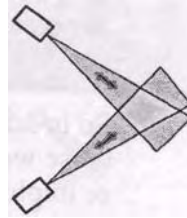


\* Negative energy EMP destroys all solid state electronics instantly. A strong negative energy EMP kills generators, current devices, and all living systems. Since nuclear binding energy is negative, such EMP arising in spacetime in the interference zone can and does directly affect and perturb nuclear material in the core, or in stored control rods. If specific "engines" are also incorporated, the core runaway can probably be induced directly.



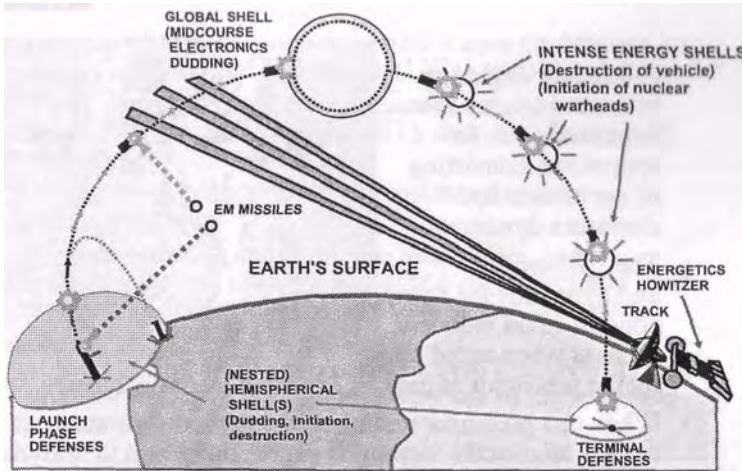
## Other uses of scalar interferometry (3)

- Scalar interferometer beams and signals can be "imbedded" in two or more normal but powerful EM signals from "normal" transmitters, and used wherever the signals meet or overlap.
- Can also operate totally "inside" a normal static potential, EM field, etc.
- Thus scalar interferometry was "buried" and disguised inside the Soviet Woodpecker signals.
- U.S. CEM/EE measurements of the overall Woodpecker signals showed nothing of it.
- Hence our nation slept on, sublimely ignorant in its belief in its archaic and flawed CEM/EE.





## Typical ABM Defenses (widely deployed by mid-70s')



## Vacuum engine (precursor engine) concept (1)



- \* Wheeler\* said:  
"Space acts on matter, telling it how to move. In turn, matter reacts back on space, telling it how to curve. "
- \* Wheeler's principle can be expanded for a whole set of spacetime curvatures and their dynamics, leading to the spacetime curvature engine concept.
- \* This also affects virtual particle flux of vacuum, so it creates an exactly corresponding vacuum engine.
- \* There is no observable mass in space, so these are "massless engines"; i.e., they are precursors to the force engines that result in matter when the precursor engines interact with it.

\* Wheeler's principle, as stated in W. Misner, K.S. Thorne, and J.A. Wheeler, Gravitation. W.H. Freeman and Co., San Francisco, 1973, p. 5.

## Vacuum engine (precursor engine) concept (2)



- A vacuum engine or precursor engine is a structural form in spacetime, consisting of curvatures and curvature dynamics.
- The "pattern" and dynamics for many actions, to be induced in mass when acted upon by the precursor engine, is captured by the geometry.
- When this precursor engine then interacts with mass, it creates an exactly correlated set of forces and their dynamics, acting in that mass.



## Vacuum engine (precursor engine) concept (3)



- Said another way: Levels of dynamic energy structures and levels of dynamic time structures mold spacetime geometry itself.
- This precursor "pattern" and its dynamics is called a template or engine.
- The precursor template interacts with, and structures, the virtual particle flux of vacuum.
- This forms an exactly corresponding vacuum engine (still a special precursor template).
- Spatiotemporal structurings and dynamics of the engine structuring and dynamics of the VPF act upon mass at all levels.

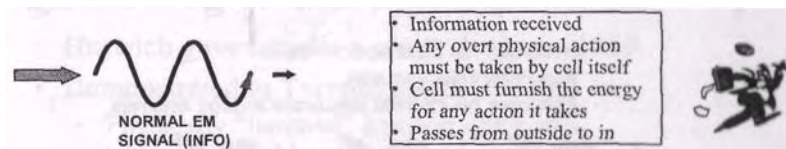
# Engines (vacuum engines, spacetime curvature engines)



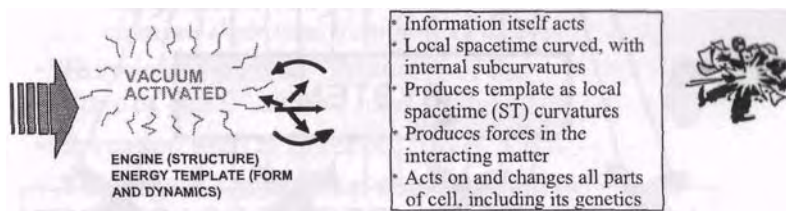
- Normal EM fields, potentials, and waves decompose into sets of longitudinal EM waves (LWs) and their dynamics.\*
- Since these LWs and their dynamics are dynamics in energy density of spacetime (ST), they are dynamic ST curvatures.
- They enfold general relativity inside extended electrodynamics.
- By manipulating and changing these LWs, one manipulates and changes spacetime curvatures and their dynamics (and virtual particle flux of vacuum and its dynamics as well).
- It is a Unified Field engineering where one controls and engineers a set of ST curvatures by use of higher group symmetry electrodynamics.

\* E.T. Whittaker. Math. Ann., 57, 333-355 (1903);— Proc. Lond. Math. Soc. Series 2, 1,1367-372(1904).

## Signal vs. precursor vacuum engine: bioenergetics example



- A. Cell must do the action itself; vacuum energy exchange is passive.  
Energy or fuel for doing the action must be added to cell externally.

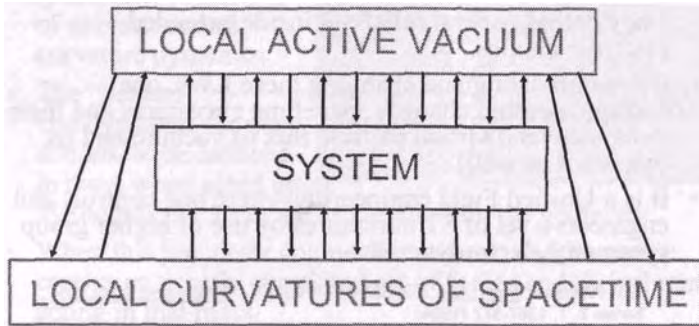


- B. Cell is acted upon; vacuum energy exchange does the specific action.  
No energy or fuel for doing the action need be added to cell externally.

# Unified field theory requires modeling and use of supersystem

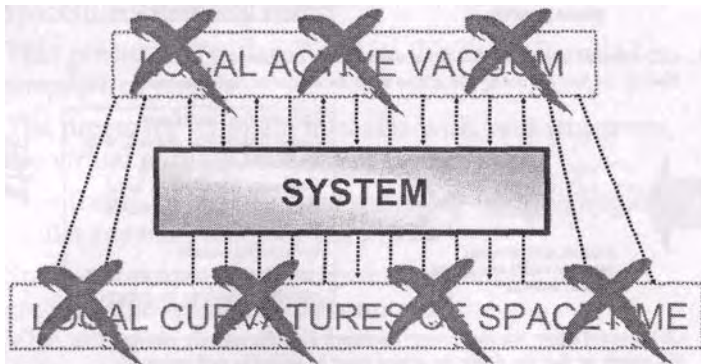
Three supersystem components interact with each other:

- System and its force dynamics
- Local active vacuum and its precursor energy dynamics (and engines).
- Local curvatures of spacetime and their precursor dynamics (and engines).



## Classical EM kills the supersystem, prevents supersystem engineering

- Assumes flat local spacetime
- Assumes inert vacuum
- Assumes no internal precursor energy engines.



# Modeling the supersystem

- Higher group symmetry electrodynamics must be used
  - Quaternions as a minimum.
  - $O(3)$  EM developed by Evans.
  - $SU(2) \times SU(2)$  EM favored by Barrett.
  - Clifford algebra EM shown by others.
- The algebra selected must be capable of modeling the supersystem interactions (system, active vacuum, curvatures of spacetime) and their structural dynamics.
- It becomes an engineerable grand unified field theory. Evans' new GUFT appears particularly noteworthy.
- Russian energetics is precisely such a model, obtained by correcting the known serious errors in CEM/EE.



## Inertial field device of Toronto inventor Sid Hurwich\*



- Hurwich gave Israelis a secret device in 1969.
- Demonstrated to Toronto police in 1969.
  - Physically "jammed" a piston lying on a table, so it could not be moved or fired.
  - After a half-hour in the room for the experiment, clocks and watches had not changed their time from time of entry.
- Hurwich was given "Protector of the State of Israel" award, June 1976.
- Invention used at Entebbe, July 3, 1976.
- Used again against Iraqi nuclear reactors.\*\*



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\* David Jones, "Israel's Secret Weapon," Vancouver Sun Times. Weekend Magazine, Dec. 17, 1977, p. 17.

\*\* Private U.S. source who observed aspects of it.



## Novel capability from "freezing time" (1)

- \* The flow of time slows in a rotated frame.
- \* Rotating frame by 90 degrees "freezes" time. Rotated object appears as just "light" in the lab frame.
- \* To rotated observer, lab itself appears as "just light"; can walk through it.
- \* Hurwich only affected the inertia of some objects in his early device, but effectively.
- \* In one experiment Golden affected clocks and watches, of all types, for four days.

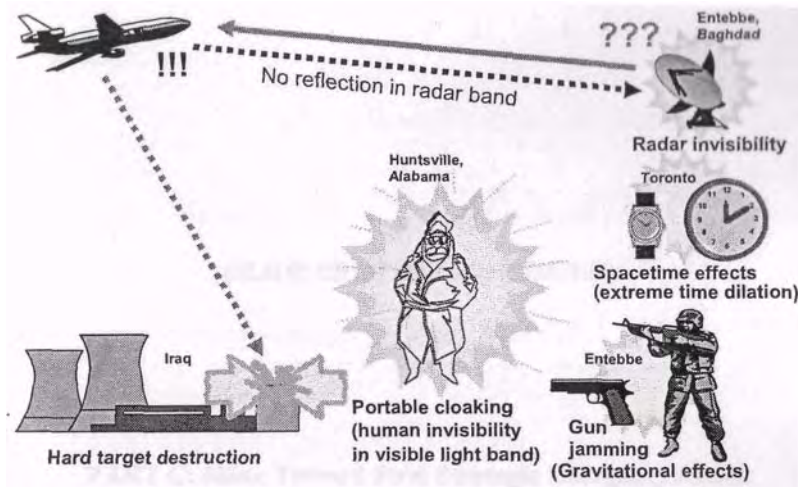


## Novel capability from "freezing time" (2)



- Operating in one's own locally rotated orthogonal frame, one can "step around" a 3-space lab wall.
  - In lab frame one appears to pass through a wall.
  - In one's own frame, the wall is "of light" and one merely steps through that light.
  - Rotated person sometimes referred to as "cloaked".
  - Bullets pass harmlessly through a cloaked person.
- At least two nations have such capability, as does a not-so-nice group using it for assassinations.
- We had a friendly demonstration and two hostile demonstrations (surviving the latter by blind luck).

# Some demonstrated capabilities





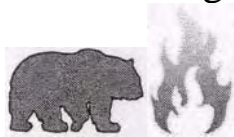
(SLIDE BRIEFING CONTINUED)

## PART C: Move Toward First Strategic Energetics Attack



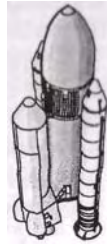
Move toward first strategic energetics attack

Brezhnev's timetable and slowly escalating incidents



## Section contents

- Schedule
- Typical test strikes
- Characterization and capabilities
- Unexpected retaliation
- Israeli retaliation
- Scheduled strike aborted



### Khrushchev's Jan. 1960 statement to the Presidium



- "We have a new weapon, just within the portfolio of our scientists, so powerful that, if unrestrainedly used, it could wipe out all life on earth. "
- "It is a 'fantastic' weapon. "
- Ever the ebullient peasant, Khrushchev sought to very quickly change the balance of power.
- Impatiently moved before his scalar interferometers were in operation.





## Generation of the Cuban missile crisis



- Khrushchev inserted long range missiles and nuclear warheads into Cuba in latter 1962, to change the balance of power quickly.
- His strategic scalar interferometers were not yet deployed and ready. His nukes and ICBMs were also in bad shape.
  - Kennedy called his hand, and he was caught bluffing.
  - After blustering to get U.S. agreement not to invade Cuba, he was forced to back down, suffering severe humiliation before the world and the Communist Party.
- When his strategic interferometers came on line, he unleashed two demonstrations to recover face.
  - Killed the U.S.S. Thresher on station underwater, off the East Coast of the U.S.
  - Produced a giant underwater EM energy burst the next day, 100 miles from Puerto Rico.



## Brezhnev's schedule:



- "We are achieving with detente what our predecessors have been unable to achieve with the mailed fist...  
...by 1985 our power will be so irresistible that we can do what we wish anywhere on the globe. "
- A decade later, at a secret meeting of European Communist Parties in 1972, Brezhnev laid out the 1985 goal and time table.
- In 1985 the Soviets would be ready to move to dominate the earth.



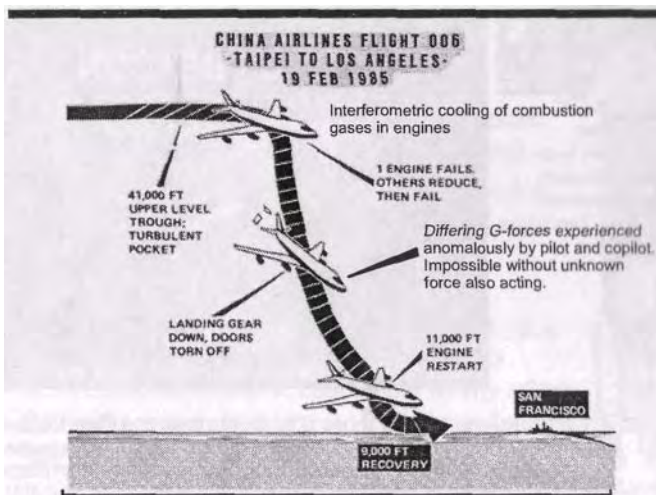


# 1985 Soviet preparations

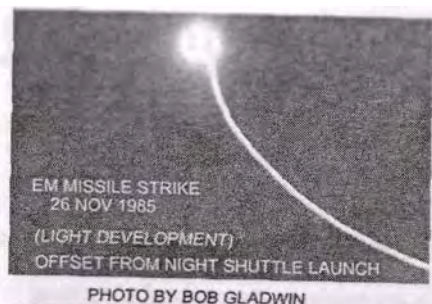


- \* For May Day 1985, a huge Soviet exercise placed 27 "power taps" in the Earth, powering up scalar EM weapons arsenal.
- \* Each tap estimated to power up to 6 huge weapons.
- In 1985, initiated earthquakes, extensive weather engineering, killed aircraft and missiles, tuned up metal softening signals, initiated a series of highly anomalous storms and electrical activity in the atmosphere. Test shots offset from shuttle launch killed Arrow DC-8 at Gander, Newfoundland.
- \* In 1986, stepped up kill of aircraft, missiles, rockets, etc.
- Israel had struck Russians hard in 1984, in one strike destroying one third of all missiles in Soviet Northern fleet.
- Israel also checked the Soviet strategic attack plans shaping toward mid-to-latter 1986.

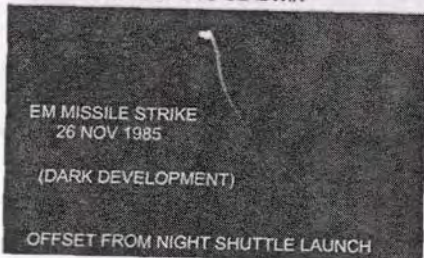
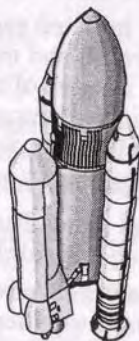
## SIX MILE DROP IN TWO MINUTES



Cooling and extinguishing combustion in the engines of a jetliner  
19 Feb. 1985. Use of scalar interferometry in endothermic mode.



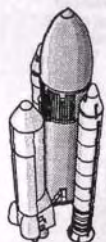
Scalar interferometer operator  
fires offset EM missile from Russia,  
through subspace interferometry.



Actual Soviet EM missile strike offset from U.S. shuttle launch at  
Cape Canaveral on 26 Nov. 1985. This was the smoking gun.



Distant operator  
in Russia slews away  
the registration point  
(the marker beacon)



26 Nov 1985

## MARKER BEACON

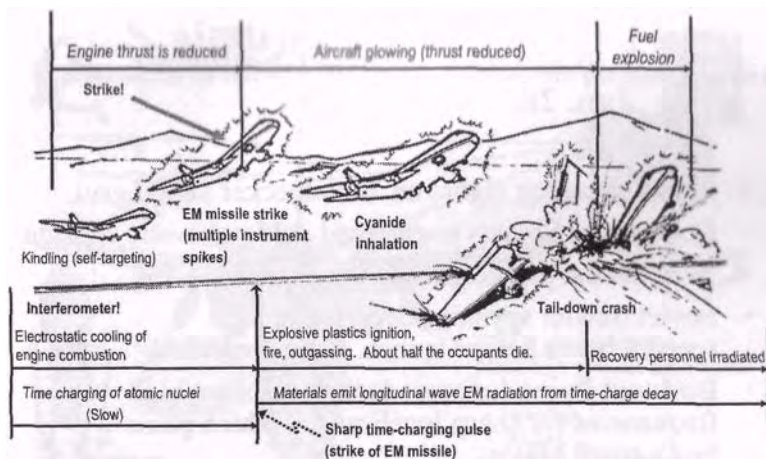
Over Night Shuttle Launch  
Cape Canaveral, Florida



26 Nov 1985  
Photographed by George Suchary

Marker beacon above U.S. shuttle launch at Cape Canaveral,  
26 Nov. 1985. Russian crews were using shuttle launches as  
practice ICBM launch targets. This is a standard artillery "shift  
from known registration point" targeting.

Two weeks later, the same weapon killed the arrow DC-8 at its takeoff from  
Gander, Newfoundland on Dec. 12, 1985, and demonstrated meeting schedule.



Kill of the Arrow DC-8 at Gander, Newfoundland Dec. 12, 1985. Dual use of scalar interferometry in endothermic mode (cool combustion in engines to reduce lift) and exothermic mode (strike with EM missile, as at Cape Canaveral 2 weeks earlier by same weapon).

## Kill of Arrow DC-8



- \* Demonstrated meeting Brezhnev's schedule.  
Killed 248 U.S. soldiers, 8 crew personnel.
- \* Interferometer weapon tested in both modes:
  - Endothermic mode (cooling combustion of engines).
  - Exothermic mode (strike of EM missile).
- \* Successful as high level probe.
  - NSC was caught thinking it was Arab bomb, thus having to hide its illegal Iran-Contra activity.
  - U.S., Canadian scientific community totally asleep.
  - Political community interested in "burying" the incident quickly, as "icing accident".



- 
- U.S. pressured Canadian government, ignored eyewitness of strike (not allowed to testify to investigation board) sent in a General Officer to bulldoze over the site quickly, withheld autopsy reports from Board.
  - Ignored decisive later signatures such as dozens of handling personnel sickened by longitudinal EM wave radiation from the struck parts of the aircraft.

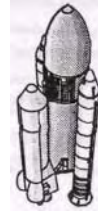




## Kill of space shuttle Challenger Jan. 28, 1986

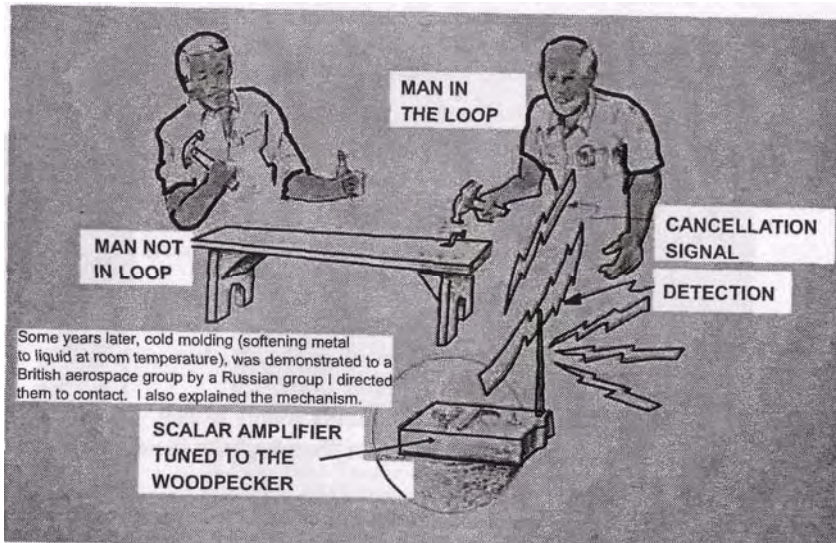


- Metal-softening signal on Woodpecker signal grid.
- Cold stress; Soviets engineered cold wave into Florida.
- Booster seal problem (thus aggravated).
- Soviet trawler spyships departed at high speed 4 hours before launch. Unprecedented.
- Birds not flying (unprecedented). Shows high frequencies for sharp localization, which pains bird's small brains.
- That night, KGB headquarters gave a party in Moscow to celebrate "perfect success of their active measures against the Challenger".\*



\* Per General Daniel O. Graham, Director of Project High Frontier and former head of Army intelligence. General Graham died in 1996.

Proof of metal-softening signal: In Tennessee, Frank Golden softens nails with amplified

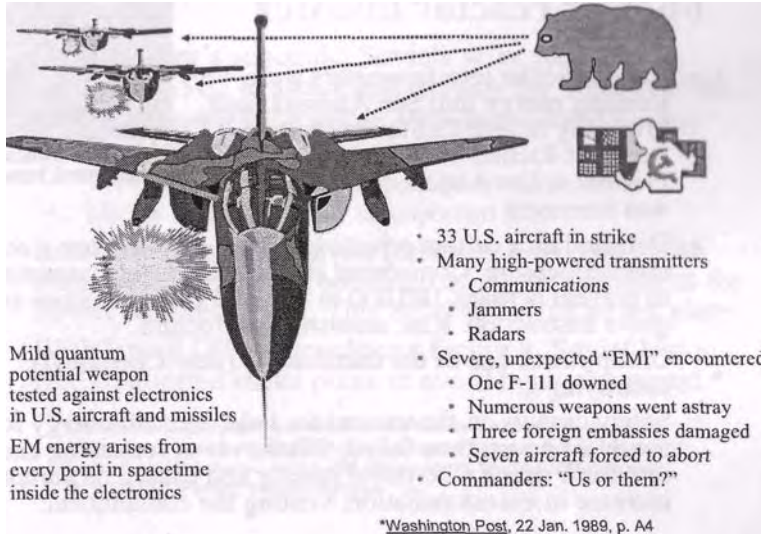


Woodpecker signal in his area when Challenger destroyed in Florida.



# U.S. air strike on Libya, April 1986

Encountered test of a lab prototype quantum potential weapon.



## Chernobyl disaster - Apr 25-26,1986

- \* Great nuclear disaster at Chernobyl
- \* One of the nuclear reactors suffered a disastrous venting of its containment building
- \* Spewed out radioactive material, which spread extensively.
- \* Casualties, etc.
- \* Was pre-emptive strike by a private U.S. group.



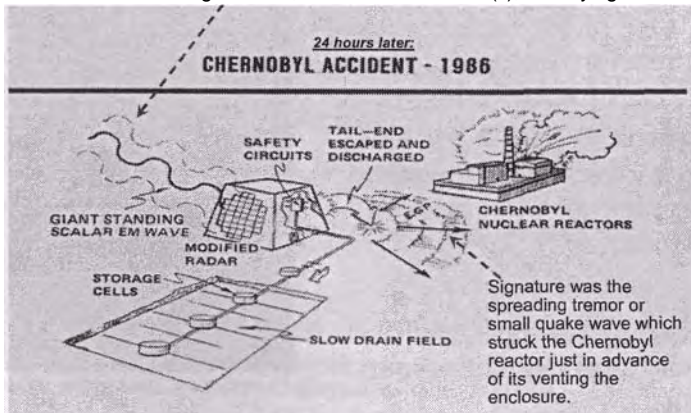
# What caused Chernobyl's nuclear reactor disaster

- Russian scalar interferometers were kindling energy into San Andreas fault, preparing to give California its long-expected Richter 9.0+ quakes in San Francisco, Los Angeles, etc. "Big One" was imminent.
- Detected by a certain private U.S. group able to use a novel countermeasure. Considered striking the distant transmitters to prevent perhaps 100,000 to 200,000 U.S. casualties and grave destruction. Risk assessment: Medium.
- Group struck one of the transmitters (near Chernobyl), destroying it.
- Safety circuits on the transmitter held, bled off energy for nearly 24 hours, then failed. Flashover of remaining energy into earth struck Chernobyl reactor and caused its abrupt increase in excess radiation, venting the containment.



## Chernobyl disaster 25-26 April 1986

An intense countermeasures pulse EMP from the U.S., backtracking on the interferometer signal wave, struck the transmitter(s), destroying one.

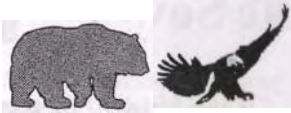


## Israel forced Soviet 1986 attack plans to be aborted



- On Brezhnev's schedule, Soviets were prepared by the end of 1985 to attack and destroy the West in 1986.
  - \* Kill of Arrow DC-8 in Dec. 1985 demonstrated meeting the schedule.
  - \* 1984, '85, '86 very active in scalar weapons tests.
  - \* Middle East was to play an important role.
- « Israel struck hard at Soviet forces in 1984; one strike alone destroyed some one-third of all the missiles in the Soviet Northern Fleet. This delayed Soviet attack plans.
- \* With Israeli QP superweapons facing it, Soviet Union (KGB) aborted strike plans to avoid being destroyed.\*

\* Development, operation, and control of the Russian energetics weapons have always been by the KGB, not by the regular Russian armed forces. Today the KGB is known as the FSB (Federalnaya Sluzhba Bezopasnosti), or in English, Federal Security Service.



## Continued preparations for new attack posture

Chessplayers think many moves  
ahead; the game continues.





## Section contents



- Tesla shields and typical tests.
- Earthquakes and Cohen's 1997 statement.
- Quantum potential and weapons capabilities.
- EM biological warfare.
- Dudding nuclear weapons.
- Aum Shinrikyo and Yakuza involvement.
- Typical test kill (TWA-800).



### Blunt warning from the Soviet Union



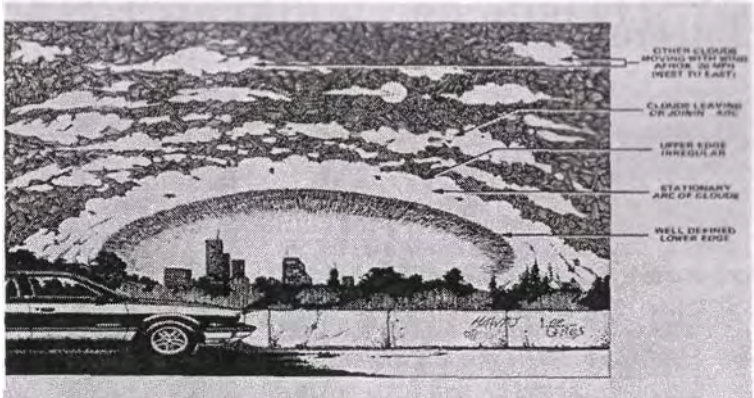
\* "If the United States deploys a shield in space, the Soviet Union will have several options, none of what Washington would wish... The Soviet Union will very quickly find a response of which the United States has no inkling as yet. "

Soviet Chief of Staff Sergei Akhromeyev, in the Washington Times of Aug. 26, 1986, warning the United States that the Soviet Union could have an unpleasant surprise response if the U.S. deploys its Strategic Defense Initiative (SDI) in space.



Comment: At the time, the Soviets had inserted nuclear weapons of 20 KT to 40 KT into most major U.S. cities, along with Spetznaz teams to detonate them on order. Those weapons and their teams are still here. See Lunev's book for some of the methods used to get the weapons into the U.S. In addition, at the time, the Soviet giant strategic scalar interferometers had been deployed for 23 years

# Shield test over Atlanta, Georgia 12 Nov. 1986



"Bottling up" shield practice over Atlanta 12 Nov. 1986.  
With a real shield, aircraft or missiles flying into it  
(from inside or from outside) explode and are destroyed.

## Put up or shut up: Counting rifles with earthquakes



(One of the aftermaths of the 1986 Chernobyl counterstrike)



Opening bet (induced quakes)

- Quebec 25 Nov 88
- Pasadena 3 Dec 88

Raise you

- Armenia 7 Dec 88

Call - what do you have?

- Malibu 8 Jan 89

Four aces

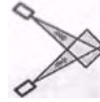
- Soviet Central Asia 23 Jan 89

Clear table (stress relief)

- Bakersfield CA et al. (various)



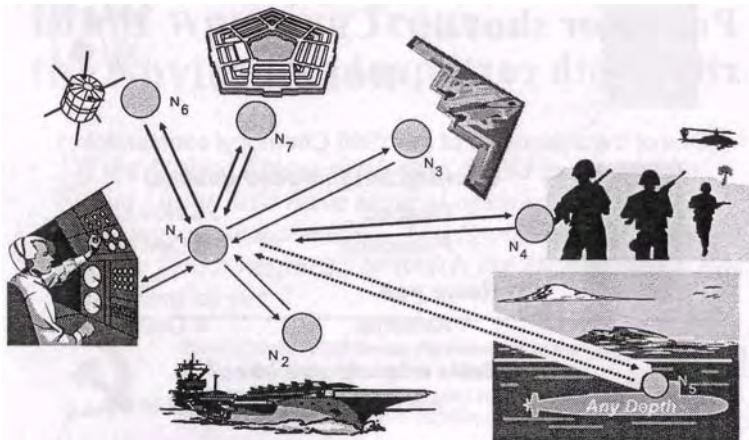
# SecDef Cohen confirms scalar interferometry weapons activity



"Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations. It's real, and that's the reason why we have to intensify our efforts, and that's why this is so important."



\*Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.



Strikes through multiply-connected spacetime. One joule of energy inserted into the lab connector, also simultaneously appears at each and every distant connected target. Tremendous "force amplifier" in military terms: can strike a thousand or million targets at once, using the energy one would only use for a single target in conventional strike.

Quantum potential instantly attacks widely separated targets. Embedded specific engines perform specific functions such as dudding nuclear warheads, propulsion, powerplants in 10 minutes.



# HVT quantum potential (1)

- \* Bohm's quantum potential:

$$V_{\text{quantum}} = \left(\frac{\hbar^2}{2m}\right) \frac{\tilde{N}^2 \sqrt{r}}{\sqrt{r}}$$



- \* "A quantum particle moves as if it were subject, in addition to external potentials, to a potential which is a function of its own probability distribution."

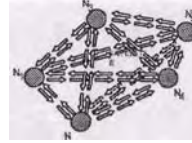
## Assumptions of Bohm's quantum potential



- \* Particle and wave function are real and separate
- \* Wave function obeys Schrodinger's equation.
- \* Particle obeys classical mechanics.
- \* Particle couples to wave function through a quantum potential.

$$(r = Y \bar{Y})$$

# Quantum Potential Characteristics



- \* No point source, not radiated.
- \* For QP between two particles:
  - \* Interaction does not vanish as spatial separation becomes very large.
  - \* Instantaneous connection through multiply-connected spacetime.
- \* Depends on quantum state of system as a whole.
- \* System parts can be greatly separated.
- \* Most powerful weaponry on earth. Five nations\* have it deployed, sixth is closing fast.

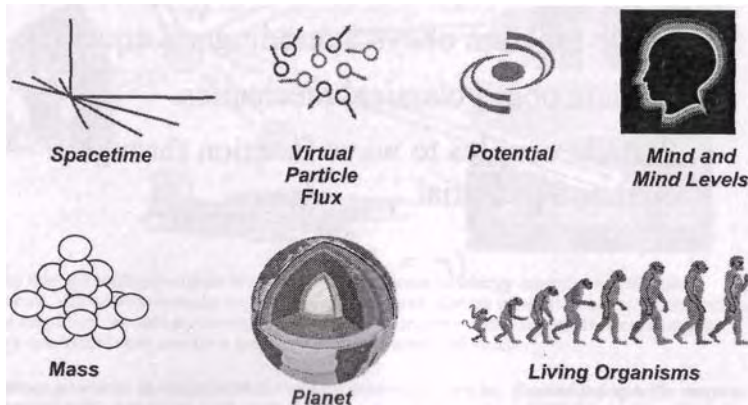
\* Russia (KGB), Brazil, China, Israel, and one other.

At the infinite velocity of the quantum potential:



**Each Is Every Other**

Any point in the universe is sitting in the palm of one's hand





# Usefulness of quantum potential (QP)

- Physical reality has vast spectrum of QPs.
  - A QP connects every member of the human species.
  - All atoms of a specific kind have a weak QP.
  - All systems of a specific kind have a weak QP.
- All human minds have a QP, as do all human bodies.
- Soviets can form a QP among desired targets in a given area, and strengthen that QP in that area at will.
- Effect produced by QP weapon in one lab target is simultaneously produced in all participants in the QP.



## Usefulness of quantum potential. (QP) (2)

- QP weapons can attack a vast array of widely separated targets with one shot.
- A "mix" QP can be formed by "mixing" multiple component QPs.
- QP can contain a specific precursor engine, or a group of them.
- QP weapons are most powerful weapons on earth.
  - Could indeed destroy the entire human species with a single shot, killing every human everywhere.
  - Or could destroy every AIDS virus and every smallpox pathogen with a single shot.
- Can dud every nuclear weapon, propulsion system, and power plant in about 10 minutes.



## Radionics: Elementary QP use



T. Galen Hieronymus

- When a body interacts with an external object by photon interaction, the body and that object are linked by a very weak QP that is established.
- A photo of a person is directly QP-linked to him.
- Hieronymus patented use of effect in the 1940s.
  - Killed insects in distant field by treating photo of the field with insecticide in his radionics machine producing a weak QP.
  - \* Cut out checkerboard pattern; killed bugs only in sections that were intact in segmented photo. Bugs migrated to the holes.
- Ukako corporation killed bugs for farmers for a decade as a useful commercial service, in multiple states.
- Was outlawed when states realized could also kill humans.
- Bin Laden and other high terrorists, e.g., could be killed instantly right where they are, merely from their photographs.

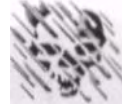
## Quantum potential is a fantastic energy-amplifying weapon



- \* Use one primary "station" in operations station
- Connect primary station to a large number of objects or systems in many remote places.
- \* Insert a one megawatt EM pulse into primary.
- Each and every distant object or system simultaneously has that same 1 MW of energy appear in it instantaneously, because of multiply connected spacetime (effective "superposition" of all participating targets).
- \* If attack a million targets, it is the same as attacking the "primary" and simultaneously all others with the same single attack. This is a vast "force amplifier" effect.
- 1 MW input in one local target gives 1,000 gigawatts total "output" in distant targets. Nothing else compares.



# EM biological warfare



- Create Kaznacheyev's "disease engine" by pumping diseased cell in the time domain, then phase conjugating once again in time domain.
- Infold the disease engine in a carrier as a Whittaker-Devyatkov structure.
- Transmit the carrier signal(s) into targeted population conventionally or use quantum potential.
- Kindling of the disease occurs in the target bodies, inducing the disease. Gulf War disease induced this way.
- Note: Quantum potential (QP) is an ideal carrier; can strike entire populace at once, with disease engine(s) desired.
- QP with one robot carrier and its engines can instantly strike all targets on earth with reproduced robot/engine copies.



## Countering EM BW: When signal is available



- QP defense is like dueling scorpions: He who strikes first to the vitals, wins.
- \* Receive, phase conjugate by time-pumping.
- \* Embed amplified phase conjugated engines in signals for transmission.
- \* Transmit amplified phase conjugated engines.
- \* Variation: put the antiengines inside the hostile transmission signal itself and fire.
- \* Places it back into the hostile transmitter(s).
- \* Hostile transmitter then transmits both the engine and antiengine, nullifying its own effect.



# Possible advanced EM BW



- Covert EM BW using disease engines.
  - Materials activated (dimensioned).
  - \* Water structured (dimensioned).
  - \* Radio, TV emissions structured.
  - \* Electrical power grid signals structured.
  - Use of quantum potentials with engines.
- Mindsnapper (negative energy EMP).
  - ♦ Tested twice by Russians in Afghanistan.
  - Instant and total death: Separates all mind-aspects from every living system in struck area.
- \* Enhance or nullify vaccines and antibiotics.
- \* Enhance or nullify BW strikes in an area.



# Indicators in EM BW



- |                    |   |
|--------------------|---|
| • Gurvich:         | Mitogenetic radiation                     |
| • Kaznacheyev:     | Cytopathogenic mirror effect              |
| • Devyatkov:       | Information content of the field          |
| • Whittaker:       | Infolded LW electrodynamics               |
| • Lisitsyn:        | Genetic brain code broken                 |
| • Popp:            | Master cellular control system            |
| • Sakharov et al.: | New approaches to general relativity      |
| • Becker:          | Cellular regenerative system              |
| • Sachs:           | Unified field theory                      |
| • Evans:           | O(3) electrodynamics                      |
|                    | Grand unified field theory (engineerable) |
| • Bearden:         | Engines using infolded LWs                |

## QP weapons summary (1)



Induce health changes and diseases in entire focused national populace at once. Has been tested in U.S.

- Expose immune systems to "shadow" (virtual) disease engines of many diseases at once. Immune system "spreads", thus totally vulnerable to any BW attack or opportunistic infections (Gulf War Disease was such a test). Tested in U.S.
- Dred all nuclear weapons, propulsion systems, power plants on earth or in an area in 10 minutes.
  - As vacuum engine carrier, induce any desired effect simultaneously in millions of selected targets.
- Can attack physical systems, minds, bodies, electronics, nuclear, etc. by its internal engine(s).
- Most powerful weapon on earth; 5 nations now have it: Russia, Brazil, China, Israel, and one other friendly nation. A sixth nation is closing on it rapidly.



## QP weapons can nullify:



- Nuclear dead-man fuzing weapons.
- ICBM nuclear warheads and electronics.
- Strategic bomber nuclear weapons and electronics.
- Nuclear submarine nuclear weapons and electronics.
- Nuclear submarine propulsion systems.
- Electrical power systems.
- Electronics and communications systems.
- Specific chemical agent contamination, biological agent contamination, or vaccines.
- Human immune systems.
- Satellites, ships, planes, subs, rockets, radios.



## Simultaneous dudding nuclear weapons worldwide, and nuclear reactors and nuclear propulsion systems.

- Via quantum potential joining U235 and Plutonium in warheads.
- Includes weapons airborne, underwater, in storage.
- Transmutations of the nuclides themselves by inserted engines.
- Part of the initial barrage to be launched by Aum/Yakuza/KGB.
- Will occur in the first minutes (10) of the strategic strike, following psychoenergetically crew-disabling QP weapons strikes.



Note: Duds both overt and covert nuclear weapons and weapons-grade materials — including covert weapons inserted on site in Russia which otherwise provide dead man fuzing.



## Negative energy EMP



- Employs negative energy electrons (persistent Dirac Sea holes) and their negative energy EM fields and potentials.
- Extreme electromagnetic pulse of these negative EM energy fields strikes target with giant pulse of Dirac Sea holes, "eats" free electrons.\*
  - All electron currents in target extinguished instantly.
  - Personnel die instantly; no nerve or brain currents. No cell twitches again; all bacteria, viruses, etc. killed. Soviets tested on two Afghan villages in 1980s war.
  - Mind-body coupling mechanism instantly destroyed, hence nickname "Mindsnapper". Mujahedin called it "wind of death".
  - All communications, electronics, missiles, nuclear warhead electronics, guidance systems, aircraft, ships instantly killed.

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\* Produces lattice positrons (excess positive charges) by eating orbital electrons.




## Negative energy EMP (2)



- Kill of an entire naval attack force, massed armor attack force, satellites, ICBMs, aircraft, tactical missiles, artillery shell fuzes, communications, tanks, ships, etc.
- Can kill an entire large installation or city the same way, instantly.
  - Or can kill more localized targets such as electrical power plants, power distribution lines and substations, refineries, chemical plants, port installations, Pentagon, C2 facility.
- Can "eat" electron charges in a strong storm front, reducing the storm energy.
- All purpose weapon; second only to QP weapons, new generation of carrier robots with energetics weapons, and sleeper mass conversions.



## Briefing to N-4 in 1996

- J-6 Staff Director for C4 systems (Adm. Cebrowski) requested briefing on Tesla electrodynamics. Naval command in Florida proposed this author brief the Admiral. I agree 
- Naval Ordnance Lab and Naval Research Lab then set up a 40-man Ph.D. board as a gauntlet, directed I be interrogated and savaged by board.
- I refused. These folks had fiercely savaged UWB radar pioneers such as Harmuth and Barrett and claimed UWB radar was impossible.\* They knew nothing of higher group symmetry electrodynamics; and were part of the problem, not the solution.

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\* They later claimed to have been "pioneers" of UWB radar themselves!



## Briefing to N-4 in 1996



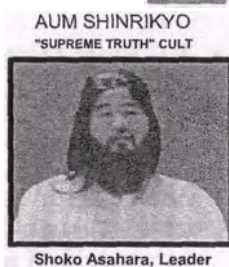
- N-4 informed "briefer has declined the briefing" Questioned why, so command had to tell him.
- N-4 immediately dissolved the gauntlet board, limited NOL and NRL to one member each at the brief, ordered that briefer not be interrupted.
- I then briefed the N-4 on what Tesla EM was, and strongly urged another weapons briefing on Russian energetics weapons. Second brief was not held.
- Later, three colleagues and I played intense, desperate role in Israelis countering and blocking a massive KGB strike on the U.S. by those energetics (Tesla) weapons, that would have destroyed this nation on May 1, 1997.

### AUM SHINRIKYO:

#### IF ANYONE HAD LISTENED AND UNDERSTOOD\*



- Cult formed in 1987. Over 60,000 members. More than \$1 billion in gold and cash.
- \* Taught that U.S. would strike Japan with devastating blow in latter 1997
  - \* Japan should make preemptive strike first
  - \* AUM would get mass destruction weapons
  - \* Was developing BW weapons (anthrax, botulism, "Q" fever, etc.)
  - \* Developed own chemical weapons
- \* Made sarin attack on Japanese subways
- Formed alliance with Japanese Yakuza



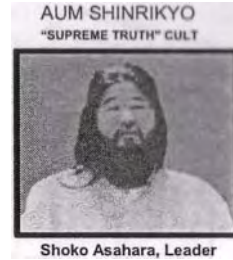


## AUM SHINRIKYO:

### Alliance with the Japanese Yakuza



- Formed alliance with Yakuza  
AUM/Yakuza leased operational use of strategic Soviet energetics weapons (strategic scalar interferometers) in latter 1989
- Trained crews, planned to strike U.S. a terrible "preemptive" blow in 1997 by assisting KGB
- Using deception, killed targets such as TWA-800
- Shoko Asahara's public statements foreshadowed Yakuza/Aum Shinrikyo participation in the KGB's strategic plan to attack and destroy the U.S. in 1997.



## Asahara's public statement



- \* Asahara's public statements hinted at his plans with the Yakuza to participate in the scheduled FSB/KGB strike on the U.S. in 1997.

- \* Quoting Asahara:



"I am certain that in 1997, Armageddon will break out. By 'break out' I mean that war will erupt and that it will not end soon. Violent battles will continue for a couple of years. During that time, the world population will shrink markedly... A Third World War will break out. I stake my religious future on this prediction. I am sure it will occur."



## Kill of TWA Flight 800 on 17 July 1996 by Yakuza/Aum Shinrikyo crews



Photographed by Linda Kabot  
Similar streak w/front glow, in clouds,



EM Missile  
Strike

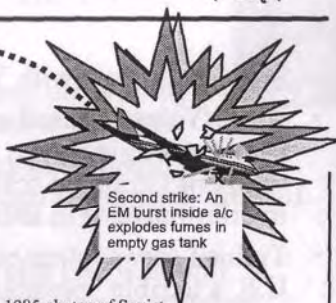
Electromagnetic  
Missile (glowing)

>20 eyewitnesses!  
Turbulent Wake in Clouds

### OTHER INDICATORS

- Helicopter eyewitness to streak, initial strike glow, and then larger second glow.
- Pilot eyewitnesses, multiple aircraft.
- Radar tracked a nonsolid blip that closed with the aircraft.
- Explosives ruled out.
- Significantly differs from downing by a light SAM at envelope of its range.
- Simple mechanical failure does not fit.

Emulation of surface-to-air missile  
(part of deception plan)



Second strike: An  
EM burst inside a/c  
explodes fumes in  
empty gas tank

- 1985 photos of Soviet EM missiles offset from shuttle launch.
- 1985 eyewitness of similar EM missile strike on Arrow DC-8 at Gander AFB, Newfoundland.
- Multiple photos of EM missile tests over Western Australia (range).
- Probable: U-2 explosion 7 Aug 96.
- C-130 crash 22 Nov 96.

Emulation of a "leaking fuel"  
explosion (deception plan)



## KILL OF TWA FLIGHT 800

July 17, 1996

>20 eyewitnesses to portions!

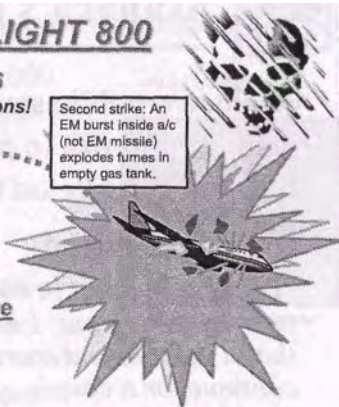
Streak w/front glow in clouds



Second strike: An  
EM burst inside a/c  
(not EM missile)  
explodes fumes in  
empty gas tank.

### A Third Strike Was a Clear Signature

- EM explosion emerged from localized area inside the forward cabin.
- Emerged from each point in focused spacetime inside some of the bodies.
- Bodies exploded from inside out.
- Bones blown right out through flesh, etc.
- Very different from explosion damage to a body from outside in.





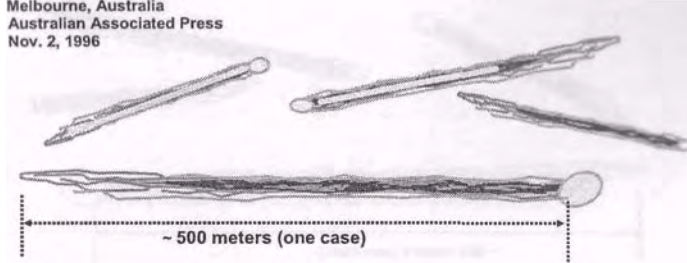
## EM MISSILE PRACTICE

Latter Sept. - Early Nov. 1996

[Many Witnesses]



Melbourne, Australia  
Australian Associated Press  
Nov. 2, 1996

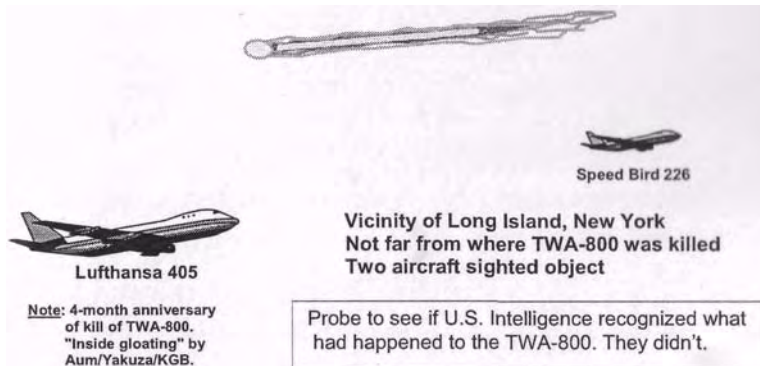


Aum Shinrikyo/Yakuza also conducted extensive firing practice tests over Western Australia. Tests after TWA-800 demonstrated what had killed the aircraft.



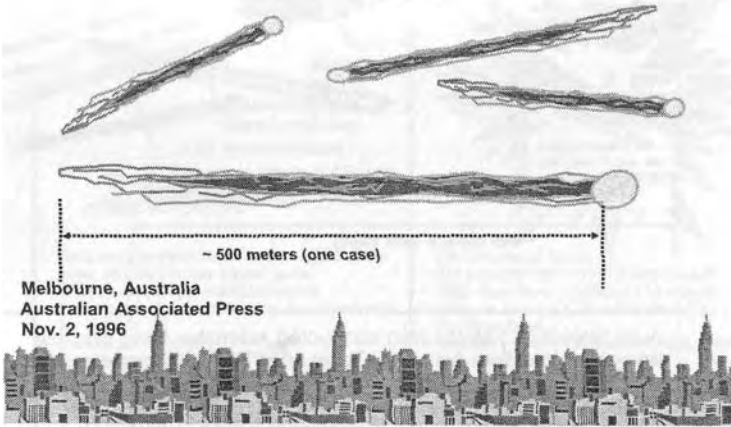
## EM MISSILE PRACTICE AND DECEPTION

Nov. 17, 1996 at 2220 hrs.





**EM Missile Practice**  
**Latter Sept.-Early Nov. 1996**  
(Multiple Nights, Multiple Streaks Each)  
(Many Witnesses)



Melbourne, Australia  
Australian Associated Press  
Nov. 2, 1996

(SLIDE BRIEFING CONTINUED)

**PART D: Second and Third Attacks Scheduled and Aborted**



## Second and third attacks scheduled and aborted

1997 was a very busy year





### Section, contents




- Attack countering in 1996-97.
- Actions 1996-1997.
- Desperate actions.
- Attack scheduled February 1997.
- The answer: The Israelis are sane, but the problem is insane.
- Desperate situation, desperate action.
- A bit of irony.
- Afterword.




## ✡ Attack countering in 1996-97 ✡

- Contacted by Harry Mason, Australian geophysicist.
  - First-hand information on anomalous lights, explosions, quakes in West Australia.
  - Obviously were energetics weapons tests.
  - Alerted me to involvement of Aum Shinrikyo, Yakuza.
  - Furnished material on Aum Shinrikyo and Yakuza.
- Mason eventually visited me here in the U.S. for illuminating discussions.
- From these, we pieced together modifications to Soviet 1996-97 attack scenario.
- Had it not been for Harry's input, we would not have had the picture in time to alert the countering nation.

## ✡ Actions 1996-1997 (cont'd) ✡

- Mason provided special information that consortium of Aum Shinrikyo and Yakuza had leased use of the earlier generation Soviet energetics weapons.
- Initial downpayment \$900 million in gold.

Obtained Sen. Sam Nunn's report on terrorism, etc. including Aum Shinrikyo. Researched Yakuza.
- Feverishly increased work on weapons briefing.
  - By late 1996, three colleagues and I desperately were trying to get message to high Israelis, that attack was forthcoming. Israel was and is the only nation which could and can counter such an attack by a rational foe.
- FSB/KGB attack first scheduled for February 1997.



## Desperate actions



- \* Attempted to alert former Israeli ambassador to UK, who had confirmed weapons to UK intermediary.
- \* Ambassador was assassinated one week before emissary could reach him.
- \* In desperation, sent alerting fax to Israeli Embassy Defense Attache, in Washington, D.C.
- \* A well-known Ph.D. and close colleague wrote a supporting study. Another close Ph.D. colleague delivered a copy to the Israeli Consulate to California.
- \* Scheduled attack countered by Israeli action; aborted.
- \* Informed U.S. channels of actions (not believed).
- \* Relaxed, breathed easier, back to energy and medical research.



## Attack rescheduled



- \* To our astonishment, shortly it became obvious that the attack was rescheduled for May 1, 1997.
- \* We were completely perplexed as to how that could be, and Russia not disappear from the Earth if the attack were launched.
- \* A great deal of anguish and wracking of one's brain resulted.
- \* The answer was disarmingly simple, so it was difficult to recognize.







## Answer: Israelis were sane; but the problem was insane



- Israelis had incorporated a sane C2\* system.

- Wait till recognize preparations, meet, decide, then issue launch order for preemption.
- Easily countered by negative energy EMP.
- Kill all QP personnel suddenly, then destroy site.
- Counter simply by rescheduling order of attacks.



Must be insane C2 system.

- Every 2 hours, computer issues real launch order.
  - Launch sequence starts "for real", threat or no threat.
- A time interval is available in the sequence where code can be entered to abort attack and revert weapons, if crews are alive.
- Otherwise, QP weapon systems fire and Russia disappears from the face of the Earth. In short, it is a wrinkle on the old dead-man fuzing and mutual assured destruction (MAD).

---

\*Command and control.



## Desperate situation, desperate action



- Latter April; clock ticking, five days from attack and certain destruction of the U.S.
- Desperately faxed Israeli Prime Minister directly, explaining problem and solution.
- Urgently requested Israel switch C2 to insane system immediately, and notify Russians.
  - It was quickly done.
- Two days before attack, the armada began standing down, much to the relief of my colleagues and me.
- Informed official U.S. channels of all actions. They did not believe it.

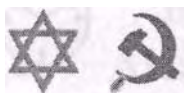




## A bit of irony



- At about the time the great armada started standing down, Secretary of Defense Cohen was making his 1997 statement at a Georgia conference, confirming the earlier scalar interferometry weapons.
- The Secretary did not know that the attack had been imminent, or that it was standing down as he spoke.
- The U.S. Intelligence Community still did not believe it at that time, and did not know of the attack plan.
- By a hair's breadth the United States survived, thanks to the friendly nation and its QP weapons.
- The FSB/KGB simply resumed its planning and maneuvering toward another attack opportunity.



## Afterword



- \* Also warned Israel and others about mind control capabilities achieved by Russia, evidenced by test kills of Captains Button and Svoboda.
- \* Some time later (unsure when), the main facilities producing those weapons were destroyed.
- \* Those facilities will remain destroyed for a great many years; but others now operating elsewhere.
- \* This pre-emptive action gave us a couple years of respite, until the robot attack at the end of 1999 occurred as a special "Millennium Gift" to the U.S.



## Afterword (2)



- FSB/KGB strategic plan to attack and destroy United States must include nullifying Israeli counterstrike by QP and other major superweapons.
- FSB/KGB plan of Strategic Asymmetric War must include such neutralization.
  - Major neutralization possible by use of massive numbers of "sleeper" conversion personas inserted into (a) appropriate governmental leaders and into (b) control/operational personnel for key superweapons.
- Sudden massive conversion in Israel disrupts government, produces utter chaos. Israel destroys itself.
  - Asymmetric war passed into Operations Phase circa beginning 2005; means massive sleeper conversions being inserted worldwide, ready for triggering.



## World's first subspace precursor robot war

An eerie war fought inside internal structures of EM fields and waves. I.e., fought inside group internalspace (a special subspace).



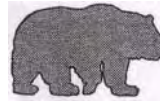
## Section contents



- \* KGB continues developments.
- \* Aum Shinrikyo and Yakuza involvement.
- \* Weather engineering.
- \* Causal system robots.
- \* Precursor robot tests.
- \* Subspace precursor robot war.
- \* Afterword.



## FSB/KGB continued weapon development and attack planning



- \* Incidents and tests continued worldwide.
  - By FSB/KGB.
  - By rogue Japanese (Aum Shinrikyo and Yakuza).
  - By other nations.
- \* Several nations/groups (including Yakuza) used Western Australia for a target range.
- \* Extensive tests documented by geophysicist Harry Mason.
- » Occasional aircraft, missile interference or kill.
- \* Full-bore weather engineering continued.





# Aum Shinrikyo and Yakuza involvement



- On site in Russia, manning strategic scalar interferometer sites (kind that killed U.S.S. Thresher).
- Heavily engaged in weather warfare over the U.S. and North America since early 1990, other range practice in Australia.
- Itching to begin firing to destroy U.S. cities and major installations.
- Yakuza now a major, hidden world force.
  - Penetrates all major Japanese companies.
  - Penetrates Japanese government.
  - Large presence in oriental populations in U.S. cities.
- Yakuza is FSB/KGB protege for asymmetric warfare against the internal U.S.; intends to destroy us.



## U.S. weather engineered by rogue crews on-site in Russia (1)



- Steering jet streams.
  - Make low pressure areas (endothermic).
  - Make high pressure areas (exothermic).
    - Move highs and lows in coordinated fashion, to entrain and steer the jet streams.
- Displace cold air from Canada, warm air from Gulf.
  - Where they meet provides sharp fronts and violent weather.
- Basic "cross-ploughed field" grid pattern covers a broad area for structuring in the grids (choosing localized cooling, heating, force engines in air).



## U.S. weather engineered by rogue crews on-site in Russia (2)



- Placing sharp bends in jetstream adds great angular momentum.
  - Spawns tornadoes, powerful storms.
  - Generates much atmospheric energy and lightning.
  - Ignites fires in those areas deliberately kept dry.
- Maneuvering and pulsing high and low pressure areas vertically above each other can produce sudden downbursts.
- Adding spiral twists can generate sudden tornadoes.
- Created earthquakes and stimulated volcanoes into eruption; generated tsunamis.

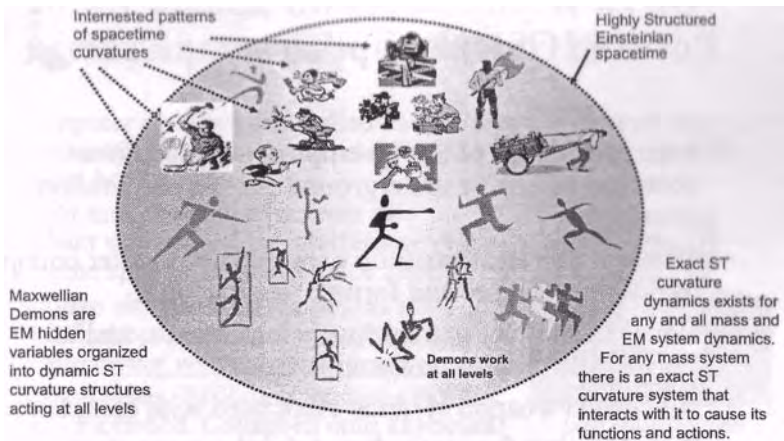


## Causal (precursor) robots and the subspace war of 1999-2000

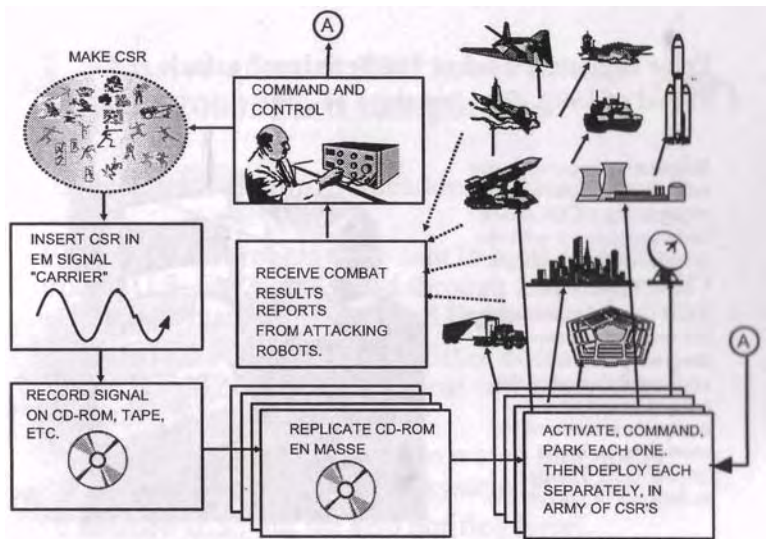


- \* For any set of force dynamics in a material system, there is a corresponding set of nonmaterial precursor dynamics. That set is a nonmaterial precursor "engine" (cause) for the physical robotic system's dynamics and functioning.
- \* The precursor engine can travel through and inside Whittaker structure of an EM signal, wave, field, potential, etc. Easily travels through matter and through EM radiations from target.
- \* A material robot thus has a precursor robotic "engine". When this precursor robot engine interacts with proper type of matter, the material robot functions emerge and are performed.
- \* FSB/KGB developed formidable army of the robots.
- \* Unleashed them throughout the U.S. in latter 1999. Israelis destroyed precursor robot army in latter 1999-early 2000.

# Causal System (Nonmaterial) Precursor Robots



Causal system robots (CSRs). These are sets of ST curvature engines, with functions organized into a single complex weapon system with communication, propagation, weapons effects, and command and control functions incorporated. When the CSR interacts with targeted mass, the mass and its fields perform those system functions.



Mass reproduction of a CSR, once made, is simple and inexpensive. The CSR resides in, or propagates inside, any Eli signal, potential, or field.

# Possible CSR\* weapons complexes



- \* Prior to collapse of Soviet empire, U.S. satellites observed extensive underground sites in preparation (hundreds).
- Construction and operation continued even after collapse of Soviet economy and former Soviet Union.
- Hence must be of extraordinary importance, and to FSB/KGB (the real power in Russia).
- \* No normal weapon systems associated with complexes.
- Probable sites for research and development, deployment and worldwide employment of CSR robots.

---

\* Causal System Robot. Same as nonmaterial robot; vacuum engine robot, spacetime curvature robot, precursor robot. See slide in Appx 1 on cause and effect.

## Prior to planned robot "millennium" attack at end of 1999, first few days of 2000



- Stimulating apparently the only analyst capable of recognizing a CSR attack and connecting it with the scheduled giant strategic CSR attack.
  - KGB General commanding the energetics weapon program previously confirmed that what this analyst writes on his computer is received as soon as he writes it (probably by Tempest techniques or energetics).



- 
- Present author was struck by CSR in latter 1999 to give a strong but deliberately nonfatal stimulus. Reported; intelligence agencies did not believe it.
  - If planned attack had occurred, Western analysts would have believed it was a severe Y2K problem, more serious than had been anticipated.



# Robot attack on this analyst as an intelligence probe in latter 1999

- Computer suddenly controlled itself. Screen split, with two horizontal bands about two inches wide each, one at top and one at bottom.
- Light thus entering eyes from two radiant sources (scalar interferometry). Engine appears in interference zone.
- Sudden violent rapid flashes, as if 100 flashbulbs at once. Created in vision center where nerve signals crossed.
- Instant heart fibrillation, nervous system malfunctioned. Collapsed onto keyboard.
- Ten seconds exposure (30 would be fatal).
- Required 4 days to recover. Then we notified the Israeli Military Attache in Israeli Embassy, etc.
- Israelis destroyed millions of robots throughout America.



## Massive nonmaterial robot attack (1999-2001): First subspace war



- Y2K problem ongoing, tremendous work ongoing to avoid it.
- Millions of CSR robots were sent in by the KGB\* through U.S. EM signals, and through EM fields and potentials in matter of ocean and Earth.
- Penetrated all over U.S., in satellites, command centers, ICBM electronics, nuclear sub electronics, computers, NSA, CIA, DIA, etc.
- Struck ("pinged") this analyst, to watch him notify "system" and see if the official system understood.
- We notified U.S., but we also notified Israel.

\*New name is Federal Security Services, but the leopard has not changed its spots. Superweapons controlled by old die-hard Communist faction, who wish to destroy the U.S. Younger faction (from which Putin came) wishes accommodation. Unfortunately the old faction is in control.



## Earth's first subspace war



- \* Israel quickly destroyed millions of robot weapon systems on site in electronics and installations and computers and command centers in the U.S., in Israel, and in other Western nations.
- A strategic war of eerie kind occurred in those few days, and it did not make a whimper or attract attention of our intelligence community. Millions of robots were destroyed.
- \* The "infolded" EM inside all normal EM fields, potentials, and waves is a special "subspace" mathematically, including inside the Earth's matter and the ocean's matter.
- The first great subspace war was fought at the change of the millennium for several days, inside EM signals in our systems, computers, etc., and no one knew it.



## Afterword to tie eerie 1999-2000 strategic war

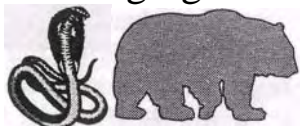


- \* The West slept on and did not believe the eerie nonmaterial precursor robots - or the war - at all.
- \* We also warned the "little nation" of the mind-control psychoenergetics tests as against Button and Svoboda, and the coming capability of this threat.
  - \* The subject had arisen in the previous attack scheduled for May 1, 1997, which was narrowly avoided.
- \* Many months later a garbled communication indicated that Israel had suddenly struck those psychoenergetics facilities also, totally destroying them.
- \* We did receive an "attaboy" for in-the-nick-of time warning provided in latter 1999.



# Countdown toward destruction

Converging WMD threats



## Section contents



- International terrorism.
- Wake-up call.
- Subsequent events.
- Calm before the storm.
- Personal conclusions.
- Time criticality.





# International terrorism escalates



- International terrorists struck hard on Sept. 11, 2001.
  - \* World Trade Center (Twin Towers) and Pentagon.
  - \* One aircraft, redirected, was targeted against White House and the President. Crashed by onboard struggle.
  - \* Osama Bin Laden was a household word.
- Suddenly the "D.C. Doldrums" regarding terrorism and WMD threats were destroyed.



Twin Towers burning after strikes by two aircraft - AP Photo.

## The wake-up call

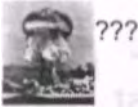


- \* A month or so later, President Bush and VP Cheney had been rather thoroughly briefed.
- \* They understood the nature of this war. VP Cheney said:



"The war on terrorism will not be over in our lifetime. It is different than the Gulf War was in the sense that it may never end. At least not in our lifetime. The way I think of it is, it's a new normalcy. "

Vice President Dick Cheney, October 21, 2001.



## Subsequent events



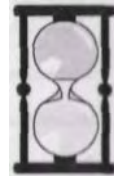
- President Bush retaliated against terrorism.
- Afghanistan, where the Taliban had long harbored Osama Bin Laden.
- Iraq, with its record of backing terrorism and mass murder of its own civilians (and its capability for WMD).
- Occupation of Iraq and Afghanistan is ongoing, as U.S. strives to get free, modern governments installed, economy restored, and proper internal security forces formed and trained. Resistance and incidents continue. Bin Laden remains at large, Saddam Hussein is caught and awaiting trial. Hussein's two sons have been killed.
- For FSB/KGB, this is a "bleeding the U.S. dragon" period.



### Calm before the storm



- U.S. national election also sowed divisiveness and preoccupied nation for more than a year.
- International terrorists continue insertions.
- \* Yakuza prepares portable interferometers; North Korea and Iran pursue nukes.
- \* Castro's inserted 10,000 guerrillas still here.
- \* Russian nuclear weapons still in U.S. cities.
- \* Chinese quiet insertion probably ongoing.
- \* Russian KGB has prepared robots again.
- \* Inserted conversions finishing; probes will be evident as buildup almost certainly underway inside the U.S. itself.



## Personal conclusion of this analyst



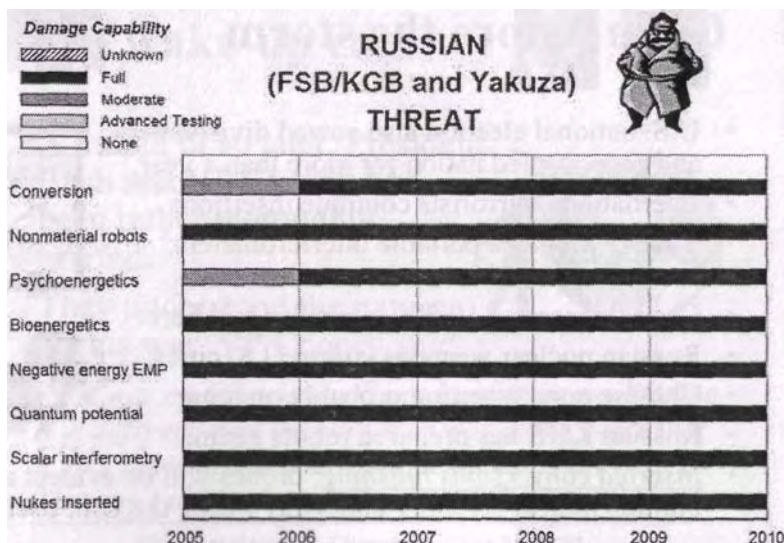
- Multiple strategic WMD threats and attacks are rapidly converging on the U.S. simultaneously.
- U.S. woefully unaware of the eerie war and capabilities.
  - U.S. in grave danger, may be destroyed.
  - \* U.S. scientific community has failed us.
  - \* Government and intelligence community have totally inadequate scientific advice.
  - Meanwhile, clock ticks toward midnight.
- Insertion phase completed; now in operations phase.



Yakuza registered superweapons on Yellowstone Caldera; achieving knockout capability against U.S. with one shot.

- Shot 9.3 seabottom quake on Dec. 26, 2004 which caused giant tsunamis in Asia.

\* T.E. Bearden, "Errors and Omissions in the CEM/EE Model",  
at <http://www.cheniere.org/techpapers/>





# Threats - working



- Energetics weapons threat.  
Bioenergetics weapons threat.
- Robots weapons threat.
- Psychoenergetics weapons threat.
  - Conversions threat  
(to be discussed).
- Terrorists nuclear and  
BW weapons threat.
- Chinese threat.
- Yakuza/Aum Shinrikyo threat.



(SLIDE BRIEFING CONTINUED)

PART E: Bioenergetics and Its Weaponization



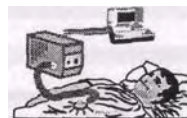
# Bioenergetics and its weaponization

Use of infolded EM against living  
bodies, biofields, and biopotentials



## Section contents

- Basic bioenergetics.
- Selected tests.
- Body radiates its internal patterns.
- Information content of the field.
- Ramifications.
- Kaznacheyev experiments and results.
- Microwave radiation of U.S. Embassy.
- Becker's work and ramifications.
- Priore's work, results, and ramifications.
- Shadow disease state,  
immune system reaction.
- Spreading the immune system.
- Gulf War Disease: Russian test.
- 1998 proposal for portable treatment unit.





# Basic bioenergetics



- Scalar interferometry.
- Longitudinal EM waves
- Bioenergetic Engines.
- Negative energy EMP.
- Quantum potential.
- Nonmaterial robots attacking bodies.
- Carrier robots with bioenergetic weapons.



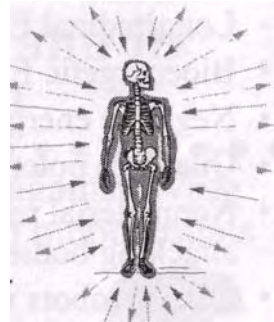
## Selected bioenergetics tests

- \* Kaznacheyev experiments
- \* Microwave radiation of U.S. Embassy
  - \* Disease induction
    - Deaths of three U.S. Ambassadors
- \* Gulf War Syndrome
- \* Immune system spreading
- \* Carrier robot test against this author



# The body continually receives and retransmits EM energy

- The body may be considered as a dielectric.
- Every part of the dielectric participates in absorption and emission of each photon to and from any point on the surface.\*
- Mechanical force effects are also electrical in nature and exchange similarly.
- CEM/EE does not account for precursor engines in the exchange



\* Reali, G. C., "Reflection from dielectric materials,"  
American Journal of Physics, 50(12), Dec, 1982, p. 1133-1136.  
The reflected field from a dielectric material is not generated  
just at its surface but comes from everywhere in the interior of it.

## Ramifications (1)



- An EM "dielectric transmission path" connects every part of every cell to every part of the body surface.
- \* Electrical processes in the body, including deep within the cell and its nucleus, participate in absorption and emission of every photon to and from the body's outer surface (and every mechanical force experience).
- All body electrical processes participate in exchange of precursor engines between body and environment.
- \* EM emission energy of the body is a conglomerate mix of fractions of all processes and functions ongoing in the body or affecting it, including in every cell. Including the engines.

## Ramifications (2)



- Reaction of each photon absorbed on any point of the outer surface of the body, connects through the dielectric transmission path to every part of the body, including to every part of every cell\*. Skin absorption connects incident signals and engines everywhere throughout body also.
- Every body emission is participated in by every part of the body, including all cells.
- Body emission "changes" environment, adding EM radiation and engines.
- Body's EM absorption allows environment to change or affect every internal function and part of the body.
- The body's reaction (healing) system continually readjusts, corrects deviations from normalcy, in every cell.

---

\* In quantum physics, part of the photon is localized and part is nonlocalized, reaching even across the universe.

## Ramifications (3)



- Total of all impinging external EM radiation upon the body, plus mechanical "special EM" radiation, affects and changes body and all its processes, participating in them.
- Impinging EM radiation engines can be manipulated to either harm or heal the body and any or all of its cells.
- The body must continually overcome these externally-induced EM changes in its cells and processes, to maintain normalcy.
- The poorly studied cellular regenerative system performs the restorative function, which is the fundamental "healing" function of the body.\*

---

\*The cellular regenerative system was mostly studied by Becker and a few others. See R. O. Becker, and David G. Murray, "The electrical control system regulating fracture healing in amphibians," Clinical Orthopaedics and Related Research, No. 73, Nov.-Dec. 1970, p. 169-198.

# Ramifications (4)\*



- EM fields and waves decompose into differential structures of two scalar potentials.
- Each of the scalar potentials decomposes into a harmonic series of bidirectional longitudinal EM wavepairs (LWs). "Engines" (special LW sets) may be inserted and carried.
- Zero vector summations of such internally structured fields make scalar stress potentials with infolded structured longitudinal wave structures and dynamics.
- Correct multiwave EM waves radiated onto body pass or diffuse back through all "emission channels" (portholes).
- Any internal part or function of cells, etc. can be directly affected, changed, controlled, etc.\*\*

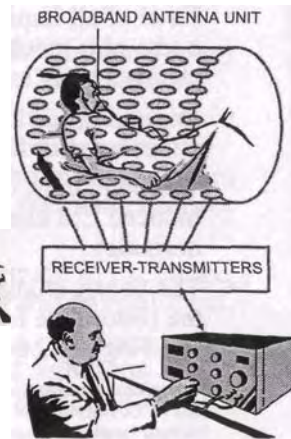
\* See the two Whittaker papers, 1903 and 1904, referenced elsewhere.

\*\* See also Porthole Briefing on website [www.cheniere.org](http://www.cheniere.org), as well as Provisional Patent Application freely given to public domain.

## Devyatkov's "information content of the field" (engines by another name)

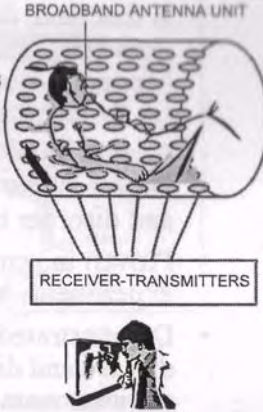


- \* Nonthermal millimeter waves.
  - Used in living systems.
  - Sharply resonant actions.
- \* Hypothesis now a theory.
  - Experiments since 1960s.
  - \* Confirmed.
- \* Now basis for
  - \* Experimental research.
  - \* Use in medicine and biology.
- \* New kind of photobiology.



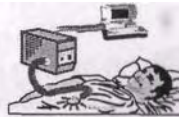
## Information content of the field (2)

- Contrary to communications theory
  - Effect increases as frequency *decreases*
  - *Number* of resonant frequencies determines
  - Signature of time-component engines
- For a resonant system
  - Average linear dimension  $L$ , wavelength  $\lambda$
  - $V$  = propagation velocity
  - $\lambda = V/f$
- Number of resonant frequencies
  - Increases as  $\lambda$  decreases
  - In proportion to  $L/\lambda$
- For each resonant frequency:
  - Particular distribution in the system
  - Determines state of the system



The diagram shows a 'BROADBAND ANTENNA UNIT' at the top, which is a circular array of many small antenna elements. Below it, several lines connect to a box labeled 'RECEIVER-TRANSMITTERS'. To the right of this box is a small illustration of a person looking at a screen.

## Extended dielectric radiation properties



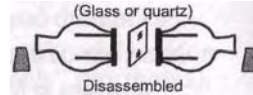
- Every part of body dielectric participates in absorption and emission of each photon at any point on the body's surface.\* The energy portion of the photon carries engines.
- The forces are due to ongoing interactions between precursor energy engines and the body's charged matter, at all levels from smallest to largest.
- All the body's internal EM fields, potentials, and waves decompose via Whittaker 1903 and 1904 into harmonic series of longitudinal EM biwave pairs and their dynamics.
- Thus all external EM radiation of the body carries the internal biwave pair dynamics of the total interior, including every cell and every condition.

\* Reali, G. C., "Reflection from dielectric materials," Am. J. Phvs. Physics. 50(12), Dec. 1982, p. 1133-1136. The reflected field from a dielectric material is not generated just at its surface but comes from everywhere in the interior of it. This results in direct communication of engines between all elements of the body and between the body and all elements of the environment.

# Proof that the cellular condition is radiated from groups of cells

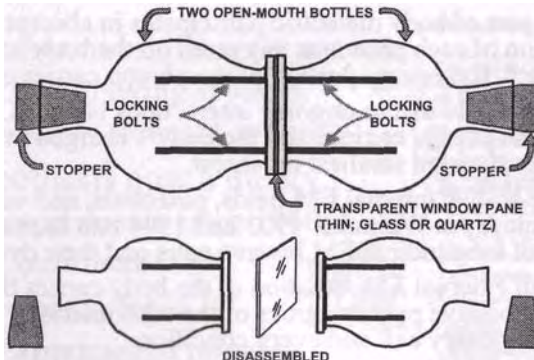


- A diseased, damaged, or infected cell culture will and does emit "engines" for its exact internal EM condition, hence the disease or damage "generatrix form" itself (in the internal structuring of the EM radiations).
- Further, these "state" emissions can couple into other targeted cells to produce disease and disorder in them.
- Proven in some 5,000 Russian experiments by Kaznacheyev.
- Demonstrated induction of cellular disease and disorder between EM-coupled but otherwise environmentally shielded cell cultures.
- Similar experiments have been successfully replicated in the West by Reid et al, and by Popp et al.



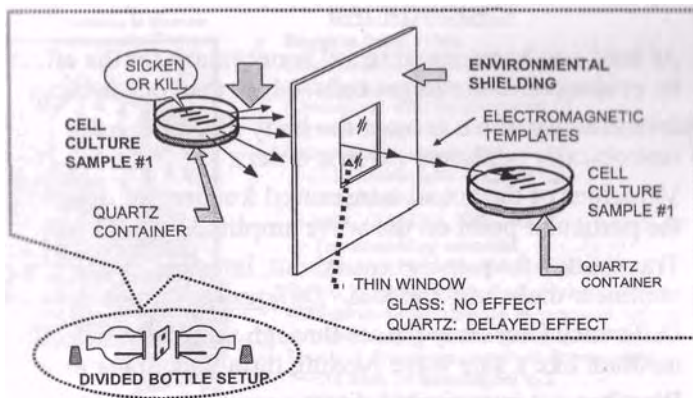
## Kaznacheyev's two-chamber apparatus

(EM Induction of effects of diseases, physical damage, nuclear radiation, toxins)



A cell culture is divided into two parts. Cells on the left are then damaged in some selected fashion. With a thin windowglass divider, cells on the right remain healthy. With a thin quartz divider, after a delay the cells on the right begin to die with the same disease, or exhibit the same damage. This directly demonstrates vacuum energy (subtle precursor energy engine) action.

# Kaznacheyev's EM induction of cellular disease and disorder

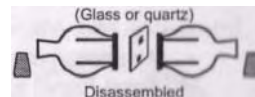


Note: Minimum lattice is one harmonic interval: IR to UV is such a minimum G-lattice. Consider particularly the dielectric pathway in the emitting diseased cells and in the receiving targeted healthy cells.

## Another surprising feature of Kaznacheyev's experiments



- Experiments do not work if targeted cells are in normal light, such as sunlight\*.
- The normal light bandwidth occupies less than a harmonic interval between ultraviolet and infrared
- Hence its difference frequencies also fill such an interval  
For a set of  $n$  frequencies, the number  $d$  of difference frequencies is  $d \gg n$ .
- The visible light spectrum "jams" specific internal EM signal inputs through dielectric pathway into the body, turning most environmental signals into harmless warmth.



\* It has also been shown that if bacteria are killed in the "dark" by UV, then 24 hours (12 generations) later are placed in sunlight, a substantial fraction of the "dead" bacteria will revive. Suspended but maintained mind engines, matter engines, and their coupling engine after physical death are demonstrated. In other words, it demonstrates how living systems can be made and assembled from "parts". The Russian energetics weapons scientists have that full capability today.



## Ramifications of Kaznacheyev's experimental results (1)



- \* At least one harmonic interval is necessary for the effect to be evidenced in the target cells. More than one is better.
- \* Interestingly, if we assume the body dielectric to be isotropically nonlinear (to first order):
  - Velocities of the actual transmitted frequencies depend upon the particular point on the wave amplitude.
  - Transmitted frequencies overshoot, interfere, breakup in nonlinear dielectric medium. Difference frequencies do not.
- \* Difference frequency passes through nonlinear dielectric medium like a sine wave passing through a linear medium\*.
- West has not investigated direct communication of EM "hash" difference frequencies in dielectric human bodies.

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\* Owen Flynn, "Parametric arrays: A new concept for sonar," *Electronic Warfare Magazine*, June 1977, p. 107-112.

## Ramifications of Kaznacheyev's experimental results (2)



- A heterodyne signal — at the difference frequency between an input signal and a reference signal — can be enhanced by adding noise\* as is well-known.
- Thus the signal of the disorder in the cellular pattern emitted from diseased cells, received by normal cells, can be amplified electronically and rather easily.
- \* Powerline radiation (electronic smog, a form of noise) thus carries its own amplification mechanism. Eventually the amplification overcomes any squelching by sunlight, etc.
- \* The Russians promptly (as early as the late 1950s) weaponized and tested these and similar effects.

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\* Dykman, M. I. et al., "Noise-enhanced heterodyning in bistable systems," *Physical Review E*. 49(3). Mar. 1994, p. 1935-1942.



# Microwave radiation of U.S. Embassy in Moscow



## BACKGROUND



- Began in latter 1950s
- Discovered on VP Nixon's trip
- Initially thought to be nuclear radiation (Discovered with Geiger counter?)
- High level target — U.S. Ambassador
- Guarantees personal attention of:
  - U.S. Ambassador to USSR
  - U.S. President
  - NSA, CIA, DIA, NSC, etc.
  - Top consulting scientists
  - Leading U.S. scientific institutions
- Two U.S. Ambassadors died, another sickened
- Anomalous health changes in personnel, only in zero-field (zero potential gradient) areas!
- Four U.S. Presidents requested Soviets cease
  - Cut from 18 watts/sq cm to 2
  - Then again increased
- No one could understand what was going on
- Aluminum screens were placed over windows
- Moscow was declared a hazardous duty zone



## More on Embassy radiation



- Diseases, health changes statistically significant, not accidental
- Johns-Hopkins scientists measured field radiation patterns inside Embassy accurately.
- Health changes occurred only where fields absent.
- Concluded EM radiation was not the cause.\*  
Their own measurements falsified their conclusion.
- Actually it proved some characteristic of the field-free (stationary) potentials was the cause, due to their 100% correlation. Direct indication of precursor engines.
- Standard electrical engineering erroneously considers the force fields in charged matter to be primary causative agents. They are not; the precursor force-free fields in space are.



\* If EM radiation were not the cause, then the outbreaks would have appeared both in field areas and in areas devoid of fields.

## Purpose of Embassy radiation

- Struck a high level target (U.S. Ambassador). Three U.S. Ambassadors died as a result. Hundreds sickened or had health changes.
- Ambassador target guaranteed attention of CIA, DIA, NSA, etc. Analysts baffled. Agencies turned to scientific advisors.
- By U.S. reactions taken at the Embassy, Soviets determined with 100% reliability whether U.S. knowledgeable in energetics and whether U.S. had defenses. They didn't. They still only know EE.
- U.S. put up window screens against the "normal EM field" radiations. Ineffective for stationary potentials.
- Proved our ignorance. Valuable intelligence assessment tool to the Soviets for decades.



## RADU vs. Radio Free Europe\*

- Mysterious radiation device, size of small watch
- Used by Romanian President to dispose of enemies
- Causes rapid growth of cancer in those persons exposed (per General Ion Papeca)
- Bizarre cancer deaths in Radio Free Europe
  - Four top officials
  - Included three successive Directors
  - After death threats from Romanian secret service
- Hence some other nations know of— and have — at least some of this technology.

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\*U.S. News & World Report, Dec. 12, 1988, p. 15.

# Lunev\* on Chinese capability (1)



- Lunev has cancer, as do most other GRU operatives that were stationed in China.
  - Lunev is highest ranking GRU defector to U.S.
  - When China and Soviet Union had basic disagreement, Chinese induced cancer in almost all the on-station GRU operatives.
  - Lunev also states China is U.S.'s greatest threat.
  - New alliance between Russia, China, and India.

\* See Stanislav Lunev, *Through the Eyes of the Enemy*, Washington, DC: Regnery Publishing, 1998. Lunev was a Colonel in GRU intelligence.

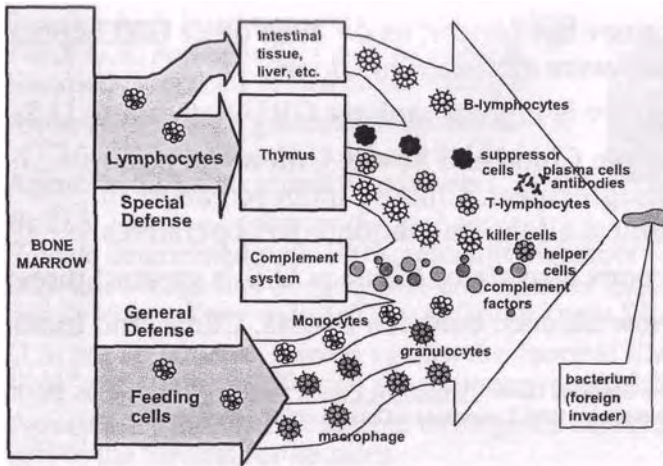
## Chinese capability (2)



- China has WMD and superweapons.
  - Nukes, ICBMs, subs, bombers.
  - \* Quantum potential weapons.
  - \* Negative energy EMP weapons.
  - Scalar interferometers.
  - BW weapons and bioenergetics weapons.
  - Probably well-along on psychoenergetics as well.
- China prepares both to reach accommodation with the U.S. and to be able to destroy the U.S.
- China's fiercely increasing energy needs are stoking the fires of U.S./China conflict, competing for foreign oil.
- China probably aware of the present FSB/KGB plan, use of the Yakuza, etc. Has new alliance with Russia.



## Simplified diagram of the immune system



## The puzzle of morphogenesis: Lack of knowledge of engines



- \* "It remains a challenge, however, to understand precisely how the combination of tissue repair mechanisms with reactivation of embryonic programs can generate growth, pattern formation, and morphogenesis in an adult animal."

Quoting Jeremy P. Brookes, "Amphibian limb regeneration: Rebuilding a complex structure," *Science*. 276(5309), Apr. 4, 1997.

Comment: Cannot be understood until a much better CEM/EE model is used for analysis and understanding, and until knowledge of how the master cellular control system and the cellular regenerative system use such electrodynamics with "engines" to cause forward actions (differentiation) and "anti-engines" to reverse damage (dedifferentiation).

# Effects of dynamic structuring of the scalar potential: Engines



"It is now known that the d.c. potentials measurable on the intact surfaces of all living animals demonstrate a complex field pattern that is spatially related to the anatomical arrangement of the nervous system..."

Robert O. Becker, "The significance of bioelectric potentials,"  
Bioelectrochemistry and Bioenergetics, Vol. 1, 1974, p. 188.

- Comment: Potentials and their complex field patterns possess internal longitudinal EM biwave dynamics (engines) for all nervous system and cellular arrangement and functioning of the entire organism.
- The fields radiated from the body enfold samples of all such internal patterns and signals (all such engines).



## Epochal work of Robert Becker



Controlled cellular dedifferentiation  
and redifferentiation, and the  
cellular regeneration system



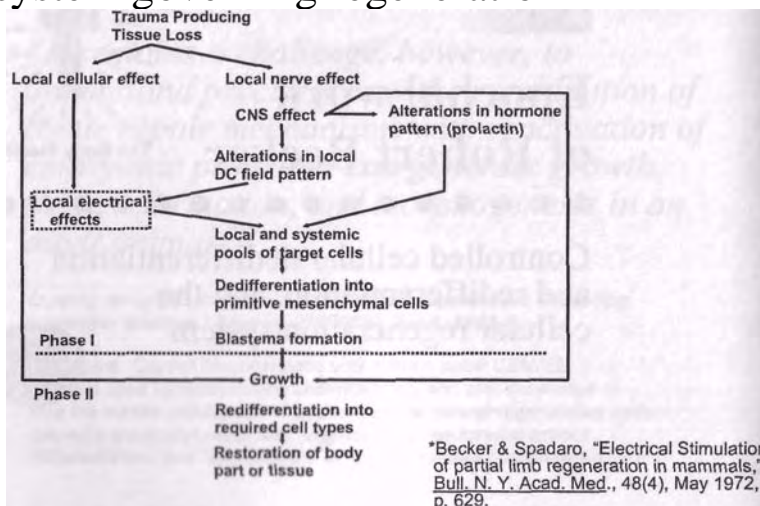
# Preliminary remarks



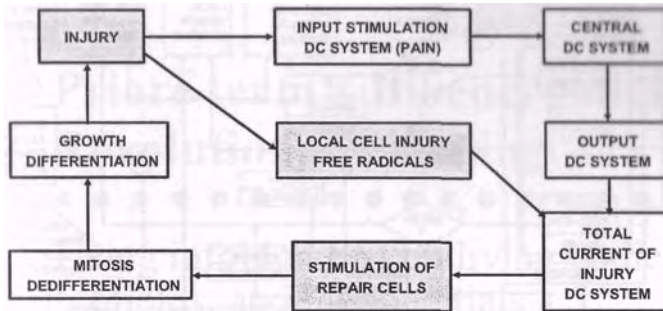
- Medical research and study centers on immune system.
  - Immune system heals nothing.
  - Fights invading pathogens, wins, cleans up.
- Healing and restoration accomplished by the poorly-studied cellular regeneration system.
  - EM system and EM techniques, not drugs.
  - Cannot be understood via standard CEM/EE. Requires higher group symmetry CEM to model it.
- Becker came within inches of deciphering the regenerative system; but CEM/EE failed him. Demonstrated cellular dedifferentiation and redifferentiation by EM means.
  - Nominated 3 times for the Nobel Prize.
  - Ruthlessly suppressed for his efforts. Funds pulled, forced to retire early.



## Becker's proposed control system governing regeneration



## Becker's theoretical control system involved with response to injury



Note: Becker only had conventional EM available, hence was unable to model the inner structuring and inner dynamics of the fields and potentials. So he missed the deeper "engine and antiengine" mechanisms.

\*Robert O. Becker, "The significance of bio-electrical potentials," Bioelectrochemistry and Bioenergetics, Vol. 1, 1974, p. 191.

## Extending Becker's work



- Becker had only the archaic CEM/EE model available; flawed and grossly inadequate.
  - Insufficient group symmetry.
  - Already eliminates the "infolded" longitudinal wave EM that structurally and dynamically comprises normal EM potentials, fields, and waves.
  - Eliminates supersystem, engines, and anti-engines.
  - The missing internal LW EM is what is manipulated and used by the cellular regenerative system.
- Nonlinear phase conjugate optics not yet developed when Becker did his seminal work; time-reversed EM unknown.

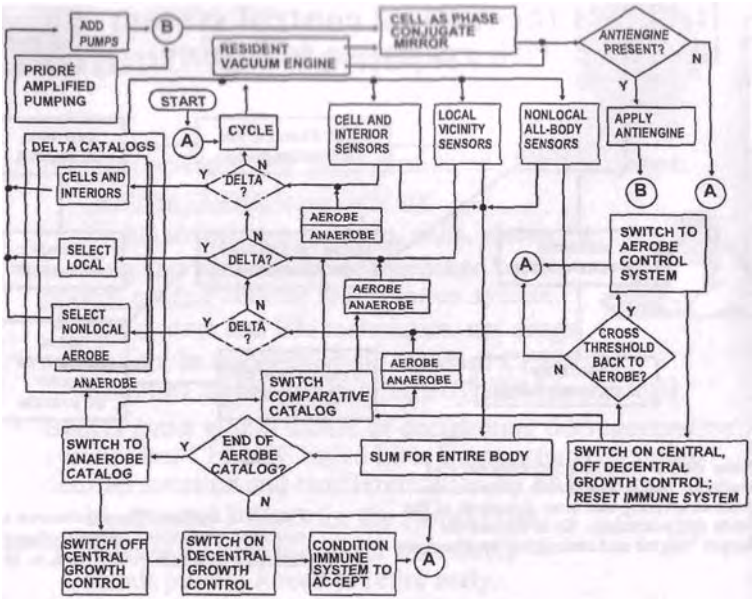


Successful higher symmetry electrodynamics models — such as  $O(3)$  — have been developed and are available.\*

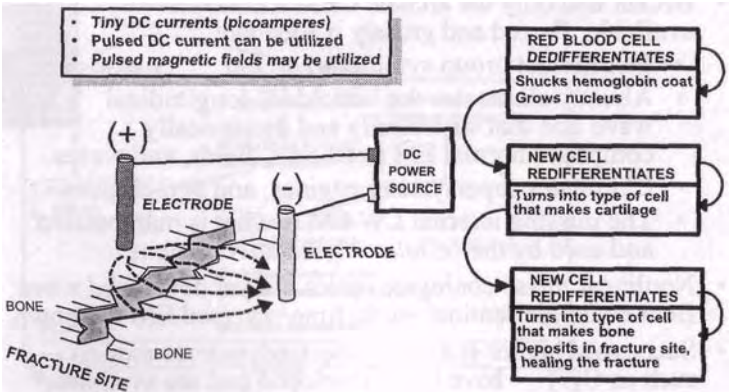
\* See M. W. Evans, "O(3) Electrodynamics," Series Editor M. W. Evans, Modern Nonlinear Optics. Second Edition, 3 vols., Wiley, 2001; Vol. 2, p. 79-267



Author's diagram of cellular regenerative system functioning



Becker's epochal bone fracture healing



One of the few EM healing modalities approved by FDA and utilized in some U.S. hospitals every year to cure intractable bone fractures.





## Priore team's Bioenergetics: Revolutionary healing



Using infolded EM on living bodies,  
biofields, and biopotentials



## Priore's sensational results



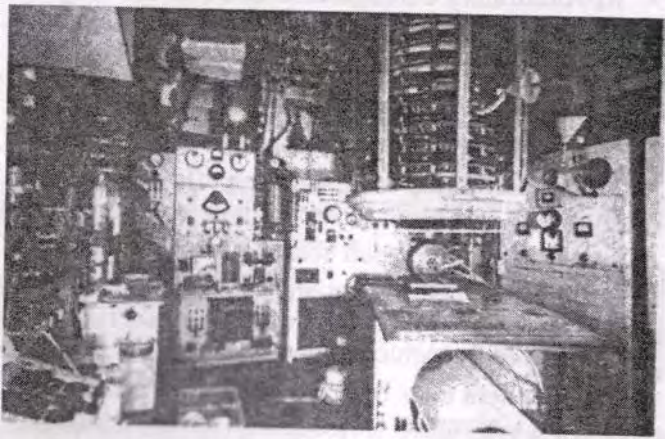
- Revolutionary cures of terminal cancers and tumors in lab animals. Replicated in humans.
- Cured dread diseases such as trypanosomiasis.
- Reversed clogged arteries.
- Restored suppressed immune systems.
- Did double-blind tests, proving efficacy. Caused a sensation in French medical community.
- Some eminent French scientists worked on it.
- Spectacular results personally presented to l'Academie by Robert Courier, head of biology section and Secetaire Perpetuel of the Academy.
- Independent tests by Courier's personal assistant and by University of Bordeaux verified results

## Priore (right) makes a point to Chaban-Delmas, Mayor of Bordeaux

- \* Many of the Priore team's experiments were done in Bordeaux.
- \* Antoine Priore patents:
  - \* "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968.
  - \* "Method of producing radiations for penetrating living cells." U.S. Patent No. 3,280,816, Oct. 25, 1966.
  - \* "Procede et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], Republique Francais Brevet d'Invention P.V. No. 899.414, No. 1,342,772, Oct. 7, 1963.



## Priore's laboratory and device for treating small animals



# Mechanism of the Priore therapy



- Produced specifically structured scalar potential
  - Some 17 EM frequencies were mixed in a rotating plasma
  - Phase conjugates added by plasma  
Modulated onto a rippling magnetic field; carried it to every cell and all interior parts
  - Formed scalar potential with inner EM longitudinal pump waves
  - Hyperspatial pumping of cells/parts as pumped phase conjugate mirrors (PPCMs)
- Each disease has its "disease-specific" vacuum engine.
- Amplified anti-engine created by the LW pumping.



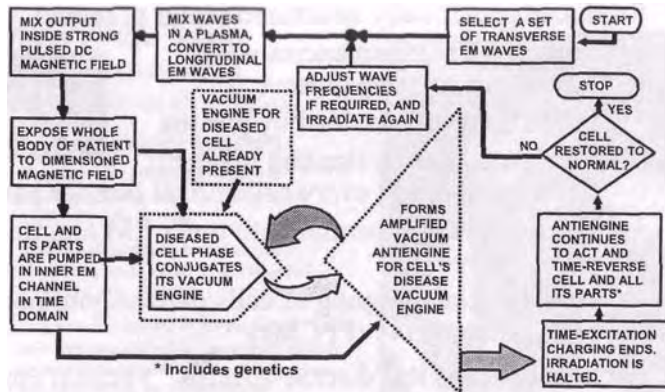
# Mechanism of the Priore therapy



- "Inner EM" pumping with longitudinal EM waves created amplified and specific anti-engine
- Amplified anti-engine rapidly reversed (dedifferentiated) cells/parts back to normal state
  - Cells returned to control by cellular control system
  - Restored cellular control system to full former functioning
- Scrubbed out the cumulated precancerous state
- Eliminated "shadow" disease state
  - Restored the immune system to previous normal functioning
  - No excessive trauma to treated animal



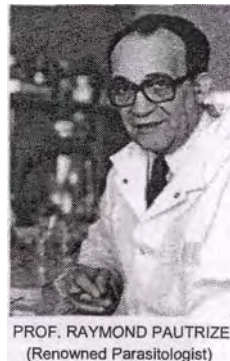
## Block diagram of Priore's healing (regenerative and time-reversing) process



- The damaged or diseased cell has (1) normal engine and (2) delta disease engine.
- Making antiengine for both, and irradiating cell with it, time-reverses the cell and gradually erases the delta condition, healing the cell.
- This is the body's own cellular regenerative mechanism, which Priore amplified.

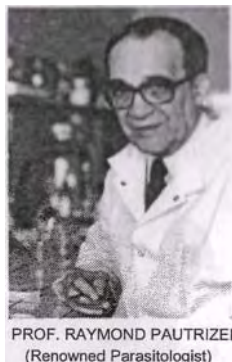
## Pautrizel's proof of time reversal of the stricken cells back to a previous state

- \* Pautrizel compared identical treatment of immature rats with immature immune systems, and mature rats with mature immune systems.
- \* Treatment restored the damaged mature system back to full mature functioning. It then recognized and dispatched the pathogens.
- \* Treatment restored the damaged immature system back to full immature functioning, unable to cope. The pathogens promptly reinfected and killed the immature rat.



## Pautrizel's proof of time reversal of the stricken cells back to a previous state (2)

- The lesson: The body is indeed returned to a previous physical state, or dedifferentiated back along its previous differentiation pathogenic path through time.
- Pathogens themselves not killed by the treatment, but by restoring the ability of the immune system to recognize and destroy them.
- Only the previous ability of the immune system is restored by the process, which is a method for controlled biological dedifferentiation (time reversal of the stricken cells).

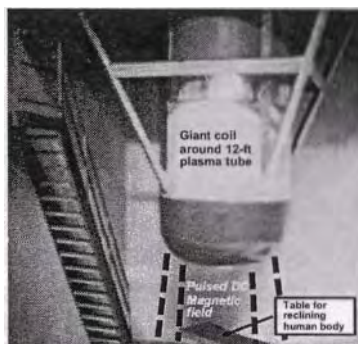


## 3-Stories high treatment facility

Priore's large plasma tube treatment facility for humans.  
Results were duplicated in human experiments,



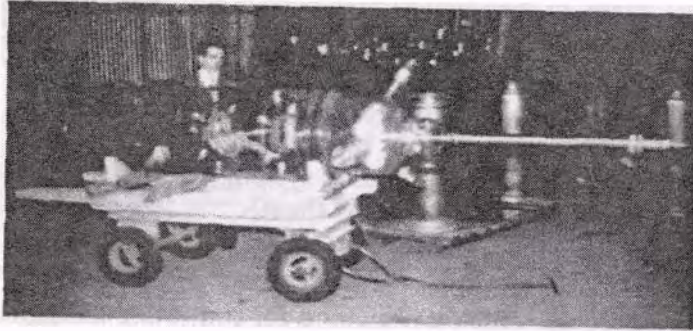
- At the end of the project, Priore had developed a large unit to treat humans.
- A few were treated.
- Cures replicated what had been done in lab animals.
- The massive size of the unit and long treatment time (hours) made the process bulky and very inconvenient — and very expensive.
- We proposed a way to do it with a suitcase-sized unit and a treatment time of two minutes.  
(See Porthole Briefing, [www.cheniere.org](http://www.cheniere.org))



# 17-foot Priore plasma tube



Used in large machine (3-stories high) to treat a limited number of human patients



Plasma tube converts transverse EM waves to longitudinal EM waves, impressing them inside a magnetic field in a huge coil around the tube. The "engine-carrying" magnetic field then penetrates the targeted living body down to atomic nuclei.

## Some peculiar results by the Priore team



- Once a rat is cured of a particular disease:
  - A single drop of blood from the cured rat, injected into another rat stricken with same disorder, would result in the injected rat getting well slowly.
  - Ability to transfer immunity and healing in the extracted drop of blood gradually decayed over period of a few weeks.
- Even the fields and potentials in the blood had been altered internally, in the treated animal.
- Injected animal's cellular regenerative system could time-domain pump over the entire body, everywhere reducing the delta between that injected drop of blood now the rat's own, and the rest of the blood in its body.
- Shows anti-engines in molecular potentials of the blood of the cured rat, and diffusion of this antiengine pattern in EM exchange with the environment as time passes.





# Regeneration in a strain of rat with part of its immune system missing

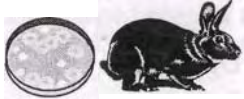


- In mammals, the immune system plays a role ill reducing the regeneration capability, compared to that of more primitive systems.
- In a strain of rat where that "suppressive" part of the immune system is missing, the regenerative capability is dramatically increased.
  - Can regrow cut away sections of tail.
  - Regrows plug cut out of ear.
  - Reconnects severed optic nerve.
  - Partially restores severed spinal cord.
- The suppressive "delta" engine of the immune system, operating simultaneously with the underlying primitive regenerative engine, sums to the modern much-reduced regenerative engine in the mammal.



## Implications to therapeutic healing

Controlled cellular dedifferentiation and redifferentiation, and the cellular regeneration system



## Bombshell: Amplified EM healing



- Amplified disease anti-engine quickly reverses disease.
- Unified field theory approach and supersystem analysis has broken the basic mechanism for healing itself.
  - The Sachs unified field theory applies and has been partially fitted.
  - Evans-Vigier  $O(3)$  electrodynamics can properly model it, including both the internal and external electrodynamics and effects of engines.
    - \* Direct engineering development is now possible.
- Experimental proof of results obtainable already exists in the French hard medical literature.
- A medical revolution is in the offing. Must change from century-old mindset against EM healing, and discover higher group symmetry EM, precursor engines and anti-engines as used by living biological systems.



## Potential Medical Applications

- Non-traumatic cancer treatment
  - Cure cancers and leukemias of all types
    - \* Remove pre-cancerous state; prevent promotion.
    - \* Restore damaged system
- Treat and cure infectious diseases
- Cure AIDS and restore immune systems
- Defense against biological warfare
  - Quickly cure virulent diseases from unknown agents
    - \* Treat, cure BW victims after symptom developed
  - Both civil populace and armed forces
- Dramatically lower health costs
- Rejuvenate the aged





# An observation for the future

- When the science of precursor engines is developed, physicians will be able to tailor these engine combinations to restore severed human spines, regrow severed limbs,\* etc.
- They will also be able to direct the body's "normal growth" to reduce and direct birth defects, genetic defects, mental defects, etc.
- Aging can and will also be reversed.

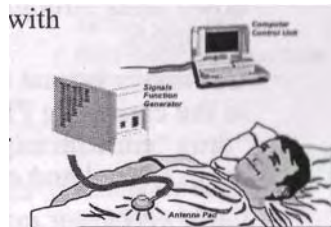


\*Such capability has been partially shown in lab animals by Becker and others. E.g., see R. O. Becker and Joseph A. Spadaro, "Electrical stimulation of partial limb regeneration in mammals," Bull. N.Y. Acad. Med. Second Series, 48(4), May 1972, p. 627-64.

## A very important fact



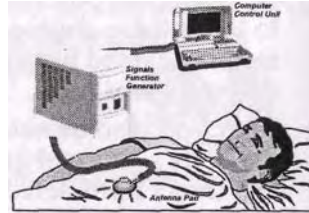
- The two engineers who worked directly with Priore, and who built his successful treatment machines, are still alive.
- A well-funded research program these engineers could reproduce working machines and again demonstrate revolutionary results achieved by Priore, Pautrizel, etc.
- Once the results are reproduced, this shows the machines do initiate revolutionary healing.
- The government scientific community could then have a very rapid Manhattan-type program to develop portable EM treatment machines, capable of saving millions of U.S. lives in coming terrorist BW attacks.



## To treat and save mass casualties: Portable unit urgently needed (1)



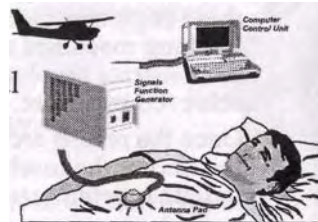
- A small, portable, relatively inexpensive treatment unit, not requiring plasmas etc.
- Treatment in 2 to 5 minutes rather than 2-hours. Simple treatment application, almost anywhere.
- Effective in advanced stages after symptoms emerged, as well as prior to emergence of symptoms.
- Effective against a wide array of illnesses.
- Development difficult; use is easy. High school student can be trained to use it in 30 minutes.



## To treat and save mass casualties: Portable unit urgently needed (2)



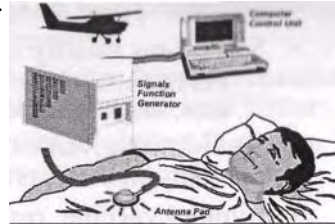
- Unsuccessfully urged crash program to develop, flood down units through emergency organizations in great quantities.
- Obviously is total anathema to the entire Big Pharmaceutical "drug 'em with expensive drugs" cartel and community.
- Once precursor anti-engine treatment is out of the genie's bottle, medical science will be dramatically altered.
- Could save millions of those future Triage Category 4 (black) patients who presently would be allowed to die.



# Proposal to DoD, USAF, NIH, CDC, etc. in 1998



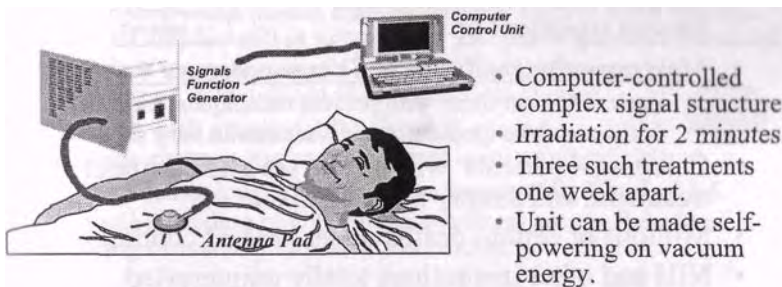
- In 1998 we proposed that U.S. government undertake crash Manhattan-style project to develop small, portable EM precursor engine treatment units for mass casualties
  - Extension of proven Priore mechanism.
  - Develop in 2 years, at a cost of \$40-100 million.
- First generation devices could save 70% of mass casualties. Second generation devices could save perhaps 90%.
- Patient treatment time 5 minutes. Produce thousands, flooded down to hospitals, fire stations, police stations, emergency crews.
- 30 min. training to learn to set controls, etc.



## Portable unit for rapid, effective treatment of mass BW casualties



- Two blankets have antennas in them.
- Uses an advanced but simple concept.
- Eliminates plasma tub) mixing etc.



- Computer-controlled complex signal structure.
- Irradiation for 2 minutes.
- Three such treatments one week apart.
- Unit can be made self-powering on vacuum energy.

# Anthrax spray attack (1)



- OTA study: Some 200 pounds released in a spray, on calm night over Washington, D.C. could result in from 1 to 3 million casualties. Three times that, if immune systems spread by QP weaponry
- Symptoms usually in 2-10 days
  - Flu-like symptoms; then 1-3 days later, shock and breathing problems cause death in up to 100%
- Antibiotics given early (before symptoms) can prevent infected persons from becoming ill
- Limited vaccine, reserved for military
- Portable bioenergetics treatment device could save 70% or more after symptoms already evidenced

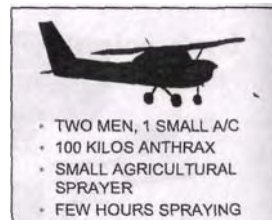


\* Multiply this number by at least threefold if immune systems are spread by QP.

## Anthrax spray attack (2)



- Highly lethal when spores inhaled.
- No present effective treatment at all unless treatment begun immediately.
- After symptoms appear, little or no chance to survive regardless of present treatment or not.
- Most casualties will fall in Triage category 4 (black).
  - Useless to treat them with present techniques: likely die.
  - Must conserve medicines and vaccines in very short supply.
- Category 4 patients will just be set aside without treatment, and simply allowed to die.
- Millions of certain deaths under present conditions.
- NIH and other institutions totally uninterested.





## Smallpox: highly contagious, no known cure, little vaccine



- Killed more than 500 million people in 20th century before eradicated in 1977; vaccinations ceased in 1980. (\*A few million doses of vaccine left.)
- Russians kept pathogen, developed new and virulent strains, sold to terrorists.
- Symptoms appear in about 12 days: fever, headache, nausea. Rash similar to chickenpox appears, turns into hard blisters.
- Highly contagious, kills one-third of its victims. If immune systems spread, will spread easier and faster and kill two-thirds of its victims.
- If smallpox unleashed in any major city on earth, will eventually kill 2 billion persons, or about 1/3 of the human species — unless radical new cure is found and utilized.
- Could be contained by portable bioenergetics.



## Urgent U.S. need for portable bioenergetics treatment machine\*



- Five nations have developed quantum potential weapons using Bohm's hidden variable theory of quantum mechanics.
- Can induce disease engines in matter or bodies at a distance.
- Have developed "spreading" of immune systems in a targeted populace (cleverly tested in Gulf War against U.S. troops)
  - Cocktail mix of disease engines for 2 dozen different diseases.
  - Targeted area's human immune systems react to these engines when they are still in virtual state, just below quantum threshold.
  - Spread immune system's resources "thinned" across response to two dozen shadow diseases at once.
- Then hit with a terrorist BW attack; spread immune systems are overwhelmed easily and quickly.
  - Yield (casualties) of the attack is increased by factor of 3-5.
  - Some spreading of U.S. immune systems accomplished and is being maintained for reimplementation.



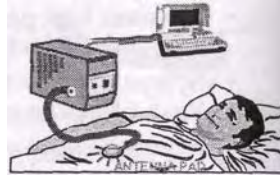
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\* Considering secret involvement of clandestine superweapons

# Additional advantages



- Can be developed in a crash program in 2-3 years.
- After sunk costs, projected cost per unit in mass production is less than \$150,000.
- Can be produced by the thousands.
- Large numbers of emergency operators easily produced.
- Emergency training could be by watching a 30 minute film, then performing one supervised group practice run.
- First generation equipment can save some 70% of the coming mass casualties from anthrax etc.
- Basis proven in France in thousands of lab animal experiments, documented in scientific literature.



## Outcome of 1998 proposal



- No one had any notion what we were talking about, nor did they care one whit.
  - At NIH, we never got out of the "policy" section.
  - Seeing Gulf War Syndrome, NIH shipped package to DoD.
  - Uninterested in a scientifically proven method for revolutionary cure of cancer and infectious diseases.
- Apparently no one checked a single French scientific reference. Not a single scientist called to discuss the mechanisms, quality of the proofs, French literature, etc. Absolutely no interest whatsoever.
- But exercises and studies show we are in horrible shape as far as effectively treating mass casualties.
- We are actually much worse off than the studies show, due to QP augmentation by immune system spreading, EM BW, and carrier robots.

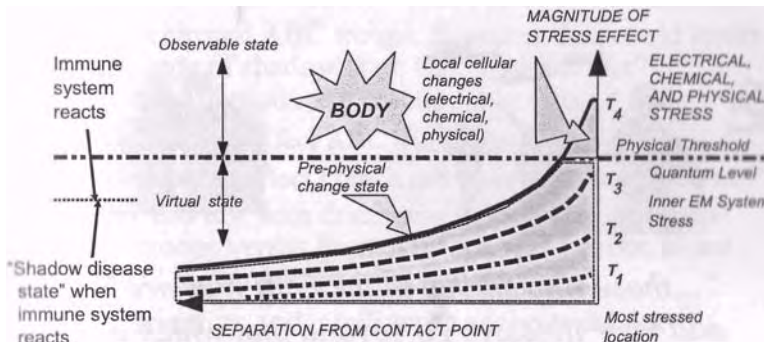
## Weapons applications (already developed or in development)



- EM engines for any disease or disability
- Delivered by normal EM signals, QP weapons, robots, carrier robots.
- Attack entire populace or any fraction desired.
  - Induce diseases desired.
- "Spread" targeted immune systems so BW attacks by international terrorists have extraordinary success.
- Render vaccines etc. ineffective.
- Cripple or destroy a populace slowly or with great speed, as desired.



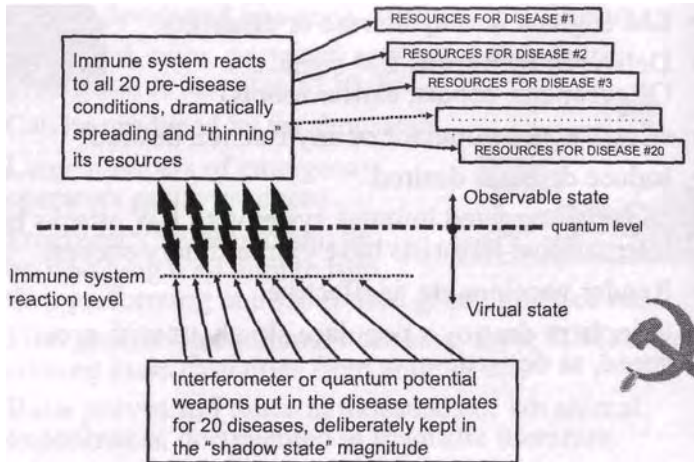
## Shadow disease state and immune system reaction



- The shadow disease state is that structured virtual state level of the promoting disease engine template, at which the immune system reacts before disease is observable.
- Eventually one will have a yearly exam, and then a quick treatment to remove all shadow state conditions prior to actual disease development. Will include aging rehabilitation.



Spreading (thinning) the immune system's ability to meet a new pathogen



Gulf War Disease:  
Finding and statement\*



" ...those who served in the Gulf War are ill and their illnesses go beyond that which is explained by stress or psychiatric diagnosis. "

\* Research Advisory Committee on Gulf War Veterans Illnesses, 2002



# Gulf War Disease (1)



- KGB test of closely controlled immune system spreading by QP weapon with "cocktail mix" in shadow state.
- Americans, British, Canadian (ABC) troops were given harsh mix of inoculations; French troops (and native populace) were not.
- ABC immune systems were temporarily depressed for some months by the inoculations, but not French (or native populace) immune systems.
- Shadow state effects in inoculation-lowered ABC troop immune systems much more pronounced than in French and natives.



# Gulf War Disease (2)



- For vaccinated ABC troops, Russians thus could lower magnitude of shadow state QP "cocktail mix" necessary to produce a reactionable effect.\*
  - Would still affect ABC troops' immune systems
  - \* Would not affect French and native immune systems.
- Using this test with dramatically different effects in ABC troops versus French troops was a probe to see if the U.S. recognized what had happened.
- U.S. scientists and intelligence analysts did not recognize it at all, and still do not understand it.



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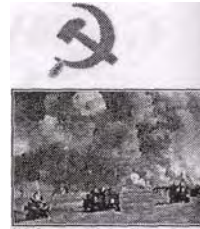
\* The reader is reminded that charged particles negentropically order and integrate coherent virtual state energy patterns (precursor engines) to observable state EM force-field energy patterns (engines).

## Gulf War Disease (3)



- Lowered ABC immune systems still form a statistical distribution.
  - KGB further lowered magnitude of shadow state cocktail mix, so only a percentage of ABC immune systems would be permanently affected.
  - With 45 years (9 generations of weaponization) experience in disease induction, this was simple for Russian bioenergetics scientists.
- \* A percentage of ABC troops' immune systems were spread and disabled; no effect on French and natives.
- Opportunistic diseases such as mycoplasma did the rest.
- \* Veterans who became ill because of their spread immune systems developed "cocktails" of diseases.

## Gulf War Disease (4)



- Gulf War Disease thus is a cocktail mix of real opportunistic diseases; several such as mycoplasma being prominent.
- \* French troops and natives were essentially unaffected.
- A deliberate probe, so Russians could see if U.S. understood QP weapons and immune system spreading. They didn't and they don't. NIH doesn't want to hear it. See our expose on exchange of EM radiation between environment and deep interior of human bodies.
- QP exposure charged the veterans' bodies with the cocktail mix engines. Exchange of body fluids, or prolonged exposure to body emanations, could induce symptoms and diseases in some wives and children.

# Indications of testing immune system spreading



- Subsequently, immune system spreading was tested in entire U.S. very carefully and at low level.
  - Various diseases such as necrotizing fasciitis used.
  - Signature is an absence of disease vector "path" record, but simultaneous statistical distribution of cases appearing throughout entire U.S.
  - Again, a probe to see if NIH and the U.S. had their heads out of the sand. They didn't, and they don't.
  - Some diseases such as mad cow disease in Canada and Europe almost certainly have KGB "steering" and "augmentation" effects. Avian flu or something similar could be the next test.



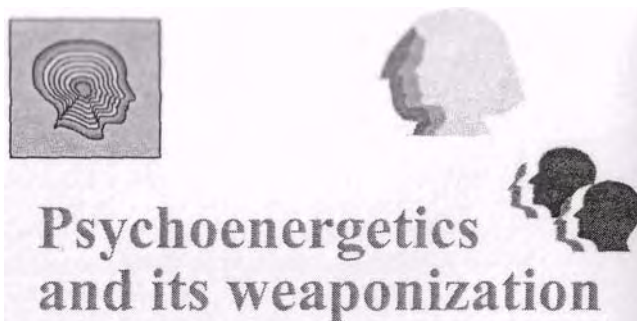
## Conclusions



- Over several decades a strange strategic set of "combination" BW attacks developed and prepared.
  - BW strikes on the U.S. by any group, will likely be augmented by FSB/KGB using QP spreading of U.S. immune systems.
  - Can gradually raise the damage with other diseases such as mad cow disease, SARS, avian influenza, mycoplasma pneumonia, etc. Or, e.g., with normal flu, for epidemic.
  - Adaptable for rapid massive destruction or gradually escalating destruction. Destroys the U.S. either way.
- Combinations provide an "over-the-threshold" capability to insure full strategic destruction of the U.S.
- NIH and U.S. government unaware.

(SLIDE BRIEFING CONTINUED)

## PART F: Psychoenergetics and Its Weaponization



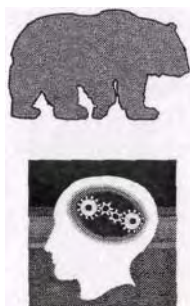
Use of infolded precursor EM engines  
against mind and mind operations



## Section contents



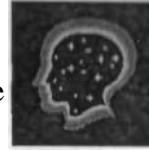
- Intelligence statement.
- Basic psychoenergetics.
- Model of living system.
- Mind levels and mind/body coupling.
- LIDA machine and tests.
- Personality mechanism.
- Model of life and death.
- Biogenesis.
- Captains Button, Svoboda, and Hess.
- Present mind control and new psychoenergetics.



# U.S. Intelligence statement on Soviet Psi research\*



- Sooner or later, Soviets may be able to:
  - Know contents of documents
  - Know troop and ship movements
  - Know installation locations and nature
  - Mold thoughts at a distance
  - Disable equipment at a distance
  - Kill persons at a distance
- Comment: These capabilities and more exist now
- Soviet psychoenergetics is a physics, not Western parapsychology as commonly believed



\* Controlled Offensive Behavior - USSR (U).  
DIA Report ST-CS-01-169-72, July 1972.

## A statement necessary for Western culture and scientists



- When God created life and living systems,  
He also created the process for making life  
and a living biological system.
  - The process is still there and it exists as a  
process in and of this 4-spatial world.
  - Once the process is discovered and modeled,  
technology can be developed to apply the process at will.
  - So scientists can scientifically study the process and  
develop the technology to use it.
  - Can make a living mind and living biological system, and  
tailor it to form and whatever behavior is desired.
  - That superweapon science is called psychoenergetics.



## A major Western problem (1):

Deep cultural bias against engineering the creation of life as a special electrodynamics



- Debate endlessly, deride experiments, etc.
- No definitions for intelligence, consciousness, life, living system.
- Do not understand mind dynamics as special EM dynamics on the time axis, using time-polarized photons and EM waves from quantum field theory.
- Have many viewpoints of living mind/body system; most favor materialism's "meat computer" notion.
- Very fuzzy on unconscious vs. conscious, and interrelation of the two.
- Do not understand "unconscious" mind is multiply conscious. A half century behind FSB/KGB psychoenergetics scientists.

## A major Western problem (2):

Deep cultural bias against engineering the creation of life as a special electrodynamics



- Notions rather 3-spatial and mechanical. No notion of:
  - Mind operations as electrodynamics on the time axis (time-polarized photons)
    - \* "Engines" and "precursor engines" concepts.
- No apparent use of higher group symmetry electrodynamics in biology; but just standard EM.
- Some good experiments and projects nonetheless. Aleksandr has proposed five axioms of consciousness, which is at least a decent beginning.
- Sometimes must state to Western scientists: "When God created life, He created the process for creating it. That process exists and can be utilized. "

# Choice of fundamental units is arbitrary (1)



- \* The choice of fundamental units in one's physics model is completely arbitrary.\*
- \* A viable physics model can be made using only a single fundamental unit, and it has been done.
- \* E. g., choose the joule (energy) as the only fundamental unit.
- \* All other "fundamental units" are functions of energy alone.
- \* Time itself, e.g., becomes a pure function of energy.
- \* Hence can speak of "extracting energy from time".



\*E.g., see discussions by Jackson in his Classical Electrodynamics. 2nd and 3rd editions

# Choice of fundamental units is arbitrary (2)



- In a model using the joule as the only fundamental variable, time itself becomes a function of energy.
- One function of energy can be changed into another. Energy can neither be created nor destroyed, but only changed in form.
- Time can be changed into energy and vice versa. And so on. Space ( $L^3$ ) also is purely a function of energy, and energy can be extracted from it.
- Time has correlates to any energy entity, such as mass-energy, momentum, "body", field, photon, etc.
- Since EM energy occurs in flows which can be engineered, everything becomes engineerable.





# Forefront Western view



- \* Igor Aleksander, emeritus professor, senior investigator in neural systems at Imperial College, London:
- \* "When it comes to consciousness nobody really understands what they are talking about."
- \* Some researchers advocate consciousness is an illusion.
- \* Strident dispute occurs over what is precisely meant by "machine intelligence". Can machines develop intelligence, or are they clever programs that only "mimic"?
- \* Others insist humans are only clever machines; brain is a "meat computer" with the mind itself just an illusion.\*



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\* Aleksander predicts that in the future machines will themselves at least claim to be conscious. In his view, the machines are already beginning to "awaken". Some others in the forefront of mind and consciousness research share his view

## Basic psychoenergetics



- Mind: "Sophisticated EM engine" in the time domain.\*
- Mind operations on time-axis have coherent virtual-state projections into 3-space body (brain). Charges integrate.
- Integration of coherent virtual 3-space changes, correlated to mind's intent, forms coherent, real 3-space EM inputs to brain and nervous system.
- Movements of body elements give reverse rotational projections from 3-space to mind.
  - Coherently integrated to perceivable state to give feedback and "personal identity".
- \* Engineerable with higher group symmetry EM.



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\* There are four photons in quantum field theory: Two transverse, one longitudinal, and one time-polarized. So there do exist photons (and therefore electromagnetics) active on the time domain. Combined longitudinal and time-polarized photons observed as a spike of scalar potential (i.e., as a voltage spike).

## New view of a living biological system (i)



- The mind and its operations is an engine in time domain.
- The body and its force functions is an engine in 3-space.
- The mind-body linkage mechanism is an engine in pliant mass with rotations in 4-space. Thus the "triad system".
  - All three engines can be engineered at will with higher group symmetry electrodynamics. Each has its precursor.
- The engines can be individually made, recorded, stored, joined, activated, etc. to form real living biosystems.
- Living robots can be formed (including at a distance) by insertion of triad precursor systems in pliant matter (electron gas, plasma, Whittaker interior of EM signals).

## New view of a living biological system (2)



- The "life-forming process" given by the Creator is still present and available!
- Any type of living system is engineerable.
- One can make a toaster, a napkin — any bit of mass — alive. Some specialists already feel that "machines are awakening".\*
- Energetics scientists have made living nonmaterial robots that can reside in any bit of matter and adapt its charges to perform the functions of its "body".



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\* For a thought-provoking article, see Igor Aleksander, "I, computer," NewScientist. 19 July, 2003, p. 40-43.

## Delay between mind-body and body-mind coupling mechanisms (1)



- A mind change (dynamic) on the time-axis creates a virtual projection component in 3-space (in the associated body).
  - \* "Intent" involves coherent "continued" mind changes, producing continual coherent virtual projection components in the 3-space body.
  - Coherent serial summation (integration)\* in the body produces delayed observable photon changes in the 3-space body, correlated to mental intent.
- Hence the coherent mind intent produces observable but slightly delayed body changes in nervous system.

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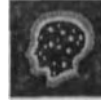
\* The coherent summation process is provided by charges  $q$  absorbing virtual changes, coherently integrating them to quantum level, and re-emitting observable photons. Hence psychoenergetics cannot be understood without the solution to the source charge problem, accomplished by the present author in 1999 and published in 2000 and subsequently.

## Delay between mind-body and body-mind coupling mechanisms (2)

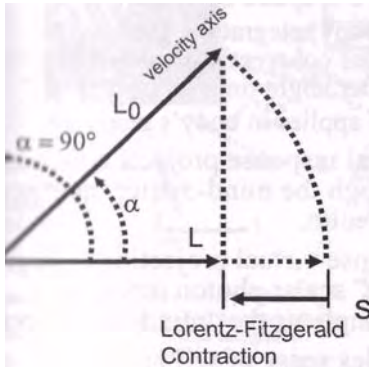


- A body-change in 3-space creates a virtual projection component on the time-axis, in the associated mind.
  - \* Coherent body changes produce coherent "virtual state" projection components on the time-axis, in the mind.
  - \* Coherent serial summation (integration) produces perceivable, delayed (time-polarized photon) changes in the mind, correlated to body responses.
  - \* Hence the coherent body responses produce perceivable but slightly delayed mind changes.
- The total mind-to-body-to-mind delay/feedback loop creates the "sense of self" and sense of "my body".

## Velocity of an object involves rotation out of 3-space toward the time dimension



- \* Necessary in order to understand the mind-body coupling mechanism.
- \* Body dynamics initiate on the L axis; mind dynamics initiate on axis T.

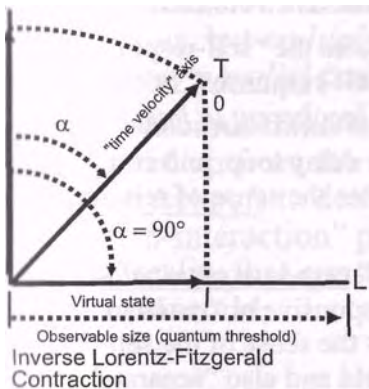


- An object moving with velocity  $v < c$  along axis L has rotated from 3-space axis L toward the time dimension t by a small angle  $\alpha$ .
- The object's "projection" back into 3-space, on axis L, is shorter, providing the Lorentz-Fitzgerald contraction.
- When velocity  $v = c$ , a full right-angle turn has been made, and the object has "lost" its projection along its direction of motion (axis L).
- Hence to the external observer it appears as a transverse 2-dimensional plane moving along L at the speed of light; in short, a photon or a light wave.

## "Velocity" of a temporal change involves rotation, out of the time axis into 3-space



- Necessary in order to understand the mind-body coupling mechanism.
- Mind dynamics initiate on the t axis; body dynamics initiate on axis L.



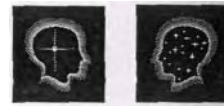
- Temporal photon's "velocity" (analogous to  $v < c$ ) along axis T has rotated slightly away from time axis T toward 3-space axis L by small angle.
- Projection of the rotation, back into 3-space, on axis L, appears in the virtual state on axis L. Call this the inverse Lorentz-Fitzgerald contraction.
- When temporal velocity is analogous to  $v = c$ , a full right-angle rotation has been made, and the object has "lost" its projection along its temporal direction of motion (axis T).
- Integration on axis L of coherent serial changes of such temporal "mind" rotations produces real, observable photons on L, that are direct analogies of "mental intent".

## How personality, awareness, and sense of being in the world are established (1)



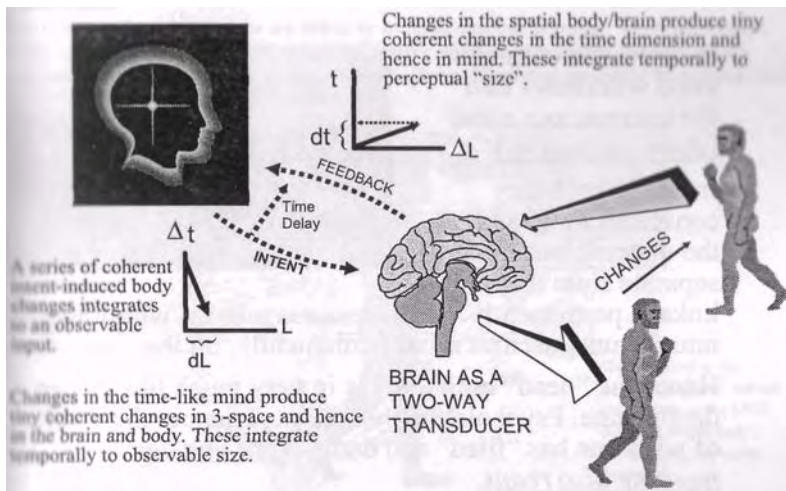
- Time-EM mental intent projects virtual EM changes into the mind-matter interface's 3-space body side.
  - Via charge negative entropy integration, continued coherent intent projections coherently integrate into observable EM input, after slight time delay.
  - Servomechanism theory applies in body's response.
- As body responds, physical response projects coherent virtual changes back through the mind-matter interface and into mind (the time) realm.
- Continued coherent response virtual projections integrate into "mentally observable" scalar photon input, after slight time delay. This completes the "mind-body" loop.
- Time delay in loop provides sense of self and conscious awareness of the body and of the physical world.

## How personality, awareness, and sense of being in the world are established (2)

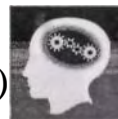


- Meanwhile, other physical universe change projections arrive in time domain which don't coherently integrate.
- \* Coherence to intent separates the "self-responses" of the body, from the "non-self-responses" of the external physical world which are incoherent to intent.
- \* The delay in the complete delay loop, and comparison of response to intent, creates the sense of self and living ("my" body, "my" mind).
- \* Comparison to the "self s" response physical world (the body) and the non-responsive or "external" physical world perceptions, creates the sense of the self being both "in" the physical world and also "separate" from it.

# Mind-body coupling mechanism at work



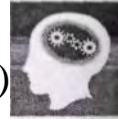
## Mind levels and life and death (1)



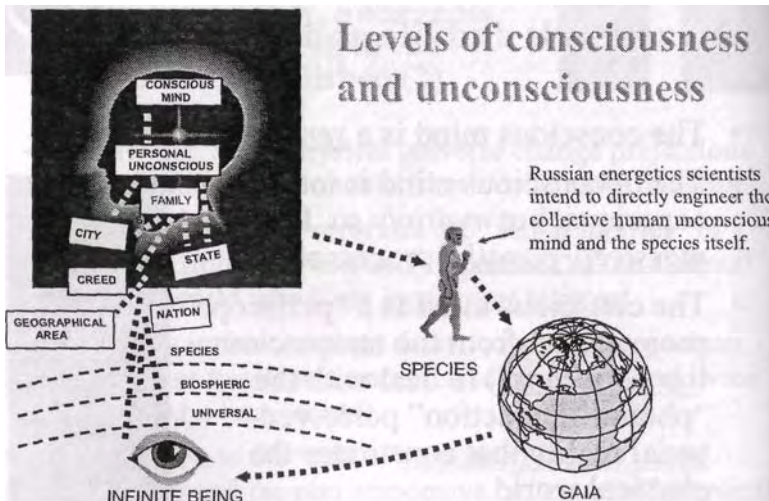
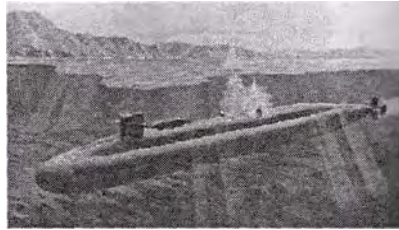
- The conscious mind is a serial processor.
- The unconscious mind is totally conscious, but multiply so. It is a massively parallel processor.
- The conscious mind is a "periscope" projected up from the unconscious (up periscope!) to deal with the "photon-interaction" perceived serial reality that constitutes the physical world.



## Mind levels and life and death (2)



- In sleep, the conscious mind withdraws into the unconscious mind (down periscope!).
- In death, both the conscious mind and the unconscious mind separate from the body linkage permanently. The conscious mind is withdrawn into the unconscious mind permanently, on the time axis.
- Hence the "dead" individual is in very much like a deep dream state. Psychologically, one experiences the result of what one has "filed" and done. What one has sown, now one also reaps.



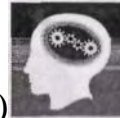
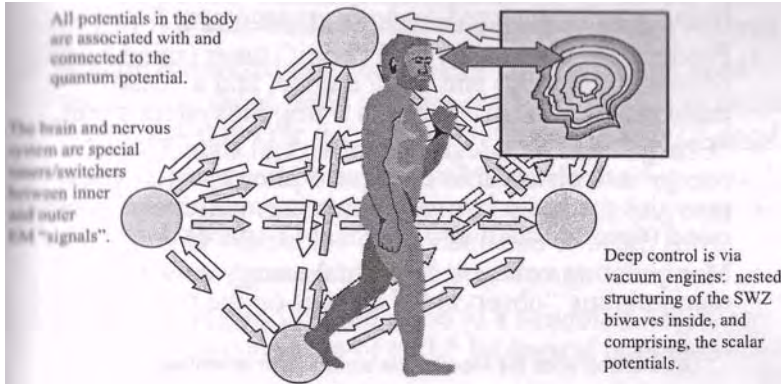
Mind levels are subject to engineering, attack, control, change, and destruction by higher group symmetry electromagnetic (psychoenergetic) technology.



## A living biological system (psychoenergetics view)



The body's cells and their parts are linked by a mutual quantum potential. Mind and thought (from a mindworld) occupy the internal SW biwave structure of the QP to that body, being continually disconnected and reconnected by the photon interaction generatrix for the flow of time.



## Mind levels and life and death (3)

- Each "dead" mind still exists in its unconscious, which further exists in the collective human species unconscious on various levels — all in time domain.
- Death and life are therefore directly connectable (both exist in the same time)
- Dead (disconnected) minds can be engineered (in the time domain) as well as living minds connected to functional physical matter "bodies".
  - A mind-engine on the time domain, without a connected body-engine in 3-space, is what the "death state" is. However, the conscious mind portion is withdrawn into the unconscious portion.
  - The collective human species unconscious can in theory be "engineered", as can the biospheric collective unconscious for all species, etc.



## Mind levels and life and death (4)



- Present biogenesis experiments occur in a nonliving disconnected mindworld environment as well as in a living mind-connected-to-body environment. \*
- Produce the proper physical "body" tuner (mind-body coherent coupling) and body engine, and a "dead" mind reconnects, producing a living biosystem again.
- "Charge" and its integration of virtual state 3-space energy into observable correlated photons in 3-space provides the basic two-way intercommunication between mind (time) domain and physical (3-space) domain.
- Manipulating coherent  $L^3$  virtual energy entities is manipulating "observable" entities on the time-axis.

---

\* I.e., it follows since the experiments occur in time as well as space.



## Life and death: Energetics perspective (1)



- \* A mind engine, coupled to a mind-body link engine and a body engine functioning in matter, is a living organism.
- \* Mind (time-engine) in collective species unconscious but separated from a functioning mind-body link and body engine in matter, is  $L^3$ -dead (separated from body) but still electrodynamically active in the time domain.
  - Still "living" (existing and functioning) in the time-domain, it exists in the time domain as time-polarized EM dynamics.
  - The "dead" or bodiless functioning mind can be recoupled to a body-engine, by a suitable mind-body coupling engine.
- \* Thus one can directly engineer a living biological entity, including building its mind-engine, its body-engine, and its mind-body coupling engine.



## Life and death: Energetics perspective (2)



\* All mind engines from every living system ever in the universe, pervade all spacetime since potentials do and did so and they reside in the 4-potentials. Inner structuring of EM is a vast world having so-called "Akashic records."

\* We are immersed in a completely "living though dead" universe as far as mind engines are concerned. The entire physical 4-universe is  $L^4$ -alive but much is also  $L^3$ -dead.

\* Mind engines can be engineered and constructed, as well as spatial body engines and mind-body coupling engines. They can be connected or reconnected to again form living beings (special biological systems).

\* Reconnecting an  $L^3$ -dead mind to a suitable  $L^3$  body is physical reincarnation of an  $L^4$  biological organism.

## Selected psychoenergetics tests

- LIDA machine
- Lisitsyn decomposition
- Captain Button
  - \* Points demonstrated
- \* Captain Svoboda
  - \* Points demonstrated
- \* Captain Hess
  - \* Points demonstrated



# Russian LIDA Machine\*

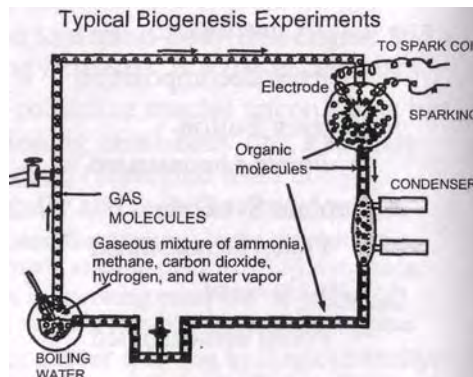


- \* U.S. Patent #3,773,049.
- \* For treatment of neuropsychic and somatic disorders, such as neuroses, psychoses, insomnia, hypertension, stammering, bronchial asthma, and asthenic and reactive disturbances.
- \* Pulsed RF field, pulsed light, and pulsed heat.
- \* Positive therapeutic results in 80% of patients.
- \* Early psychoenergetics device, quickly superseded, hence released for medical use.

\* W. Ross Adey, "Biological effects of low energy electromagnetic fields," Proc. NATO Adv. Study Inst. on Advances in Biological Effects and Dosimetry of Low Energy Electromagnetic Fields. Plenum Press, New York, 1983. Study shows West knew and knows only ordinary electrodynamics and EM, and has no knowledge of real psychoenergetics. Not even aware that EM force fields do not appear in massfree spacetime, but only curvatures of spacetime appear there. Unaware that mass is a component of force, by  $F \equiv \partial/\partial t(mv)$ .

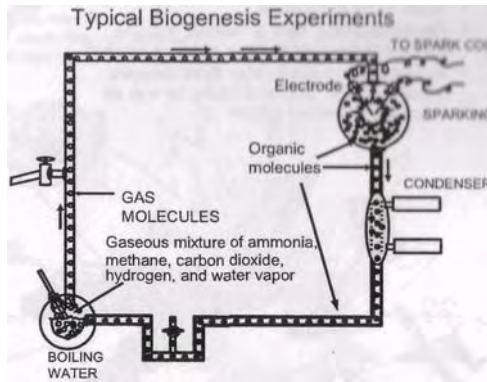
## Typical Miller-Fox-Urey biogenesis experimental apparatus (1)

- Engines of and from all life forms ever on earth or in the universe exist in the ambient vacuum potential.
- The Miller-Fox-Urey experiments were not in a "sterile" environment.
- Heat (IR) and UV constitute
  - (1) a harmonic interval with a difference frequency, and
  - (2) amplifying by the process previously shown.



## Typical Miller-Fox-Urey biogenesis experimental apparatus (2)

- These experiments "kindled" previously living forms from the available gases etc. by amplifying the ancient living engines from their virtual state to the observable state, so the masses were molded into the physical states of their templates.



\* KGB psychoenergetics weapons scientists understand this.

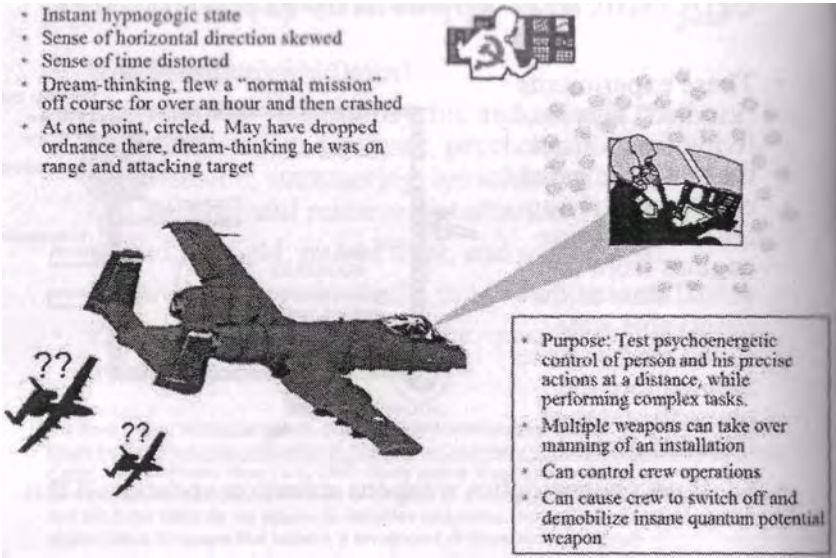
## Three spectacular FSB/KGB psychoenergetics tests in U.S.



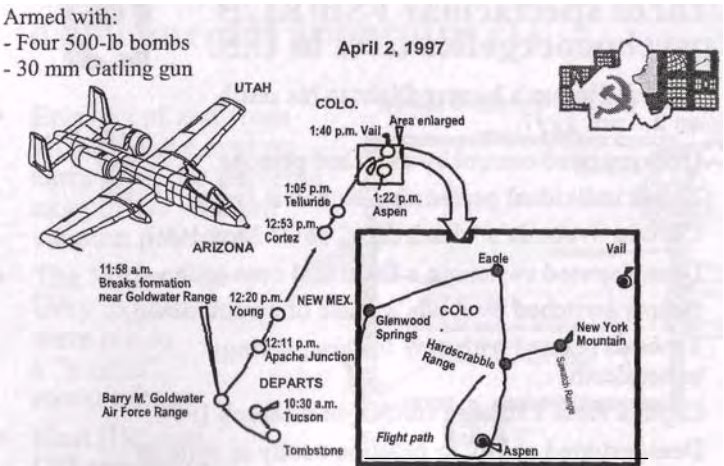
- Captain Button's bizarre flight to his death on 2 April 1997.
- Demonstrated control by switched persona.
  - Target individual performing technical tasks.
  - Captain Svoboda's "death dive" on 27 May 1997.
  - Demonstrated switching a fractional conversion.
- Simply switched Svoboda's sense of up and down.
- Svoboda reacted with new fraction, diving to her death.
- Captain Hess's strange suicide on 4 March 1998.
- Demonstrated ability to function coolly in spite of autonomic nervous reflexes until body is nonfunctional.
- Example of complete conversion,



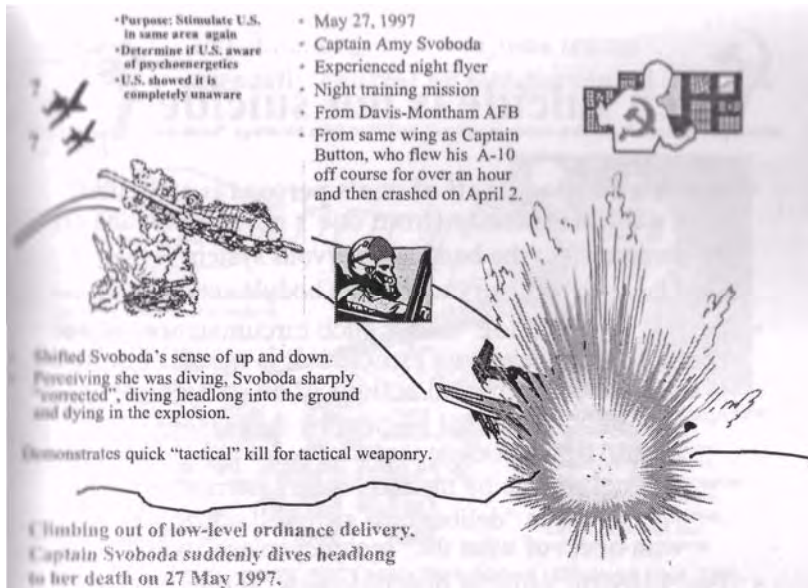
# Captain Button's bizarre flight to his death on 2 April 1997



## Captain Button's flyaway path to his eventual fatal crash



Many distinctive Russian tests have occurred in the month of April over the years, in preparation for the annual May Day report to the die-hard communist faction of the KGB.

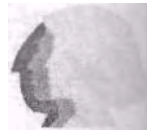


## Captain Hess's death: conversion including autonomic nervous system

- Capt. Gordon Hess, NY Army National Guard.
- Early morning jog, Mar. 4, 1998, Ft. Knox, KY.
- Veered aside, sat down, and stabbed himself 26 times with relatively small Leatherneck utility knife.
  - \* Penetrated left heart ventricle twice; each a disabling blow.
  - Penetrated lung with hemorrhaging 4 times (disabling).
  - Penetrated liver once.
  - \* Four L-shaped wounds (calmly twisted the knife).
- Demonstrates deep control of autonomic nervous system; calmly ignored pain, hemorrhaging, etc. altogether.
- Officially declared a "suicide". Impossible.
- Probably an acceptance test of Russian psychoenergetics weapon improvement from 1997 (Button and Svoboda).
- Suspended autonomic system reflexes in the conversion.



# When suicide is not suicide



- When a fraction or all of one's persona is switched, then a different entity (from one's normal persona) is
  - In control of the body and nervous system
  - Ordering and carrying out the body's actions.
- Intentional "suicide" under such circumstances is not normal "single persona" suicide. It is murder because it is by direct intent and actions of an outside party.
  - It is still "intentional suicide" by the persona in control of the body at that time.
  - It is not suicide by the individual's normal persona.
  - Analogous to "deliberately switched schizophrenia", with intent of what the "second persona" will do.
- Psychiatrists, clinical psychologists, and law enforcement officers cannot properly assess it.

# Present mind control capabilities



- Conversion or control mind directly.
- Complete control over mind and body, including autonomic nervous system.
- Consider controlled actions desired for a given purpose:
  - Each requires a persona, characteristics, emotions etc.
  - In short, one "conditioned" personality (engine).
  - Can have multiple such conditioned personality engines available, each for different purpose, task, and mission.
  - Switch personality engines in controlled person at will.
- Carrier robots can transport multiple engines, including energetic, bioenergetic, psychoenergetic. Can "infect" multiple targeted persons or persons of opportunity.
- Converted person is a multiple purpose weapon system.



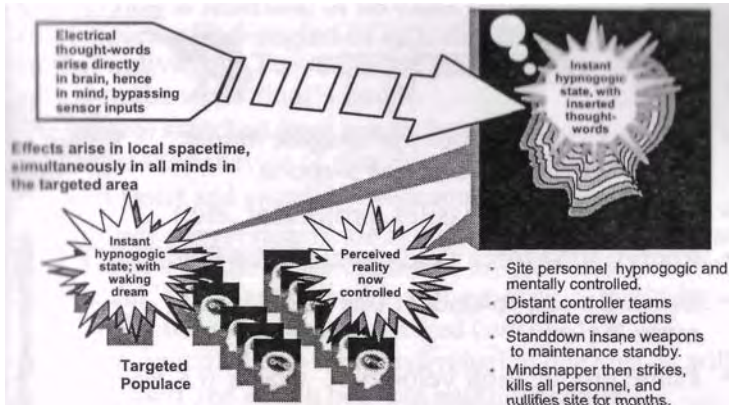




## Psychoenergetics weapons teams mentally control all site personnel



Counters all sane mad\* systems and nullifies human component of all weapon systems



Indicators: Two A-10 incidents 1997, Captain Hess incident, LIDA device since 1950s.

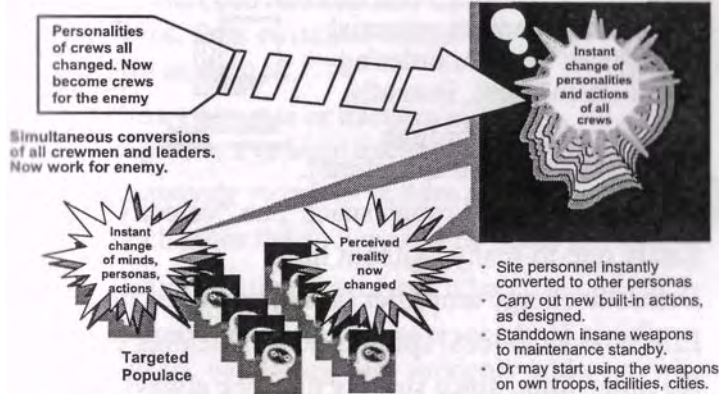
\* MAD = Mutual Assured Destruction.



## Psychoenergetics weapons teams switch sleeper conversions in all crewmen



Counters all sane mad\* systems and nullifies human component of all weapon systems



OBLIVION 267

Indicators: Captain Button and

Captain Hess incidents.



# Propagation of Weapon Effects (1)

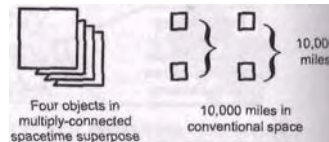


- Conventional weapons propagate matter or energy or both through 3-space.
- Matter (bombs, missiles, projectiles, etc.).
- Energy (EM force fields, sonic force fields, etc.)
- Basically one-to-one, or one "bus" to many-on-any.
- Finite propagation velocity  $v$ : where  $0 < v < c$ .
- Time delay: Shielding and pre-strike retaliation possible.



# Propagation of Weapon Effects (2)

- Structured quantum potential propagates vacuum ordering (vacuum engines), instantly.
- Zero time delay (through multiply-connected spacetime).
- No propagation "through space", no "velocity" as such.
- Easily one-to-many, without limit.
- Dramatic energy amplifier (gates, amplifies flux ordering).
- Effects arise in local spacetime; no shielding possible.
- No range limit, since striking distance always zero.
- QP weapons obsolete all other weapons.



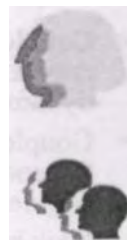
## Conversion and fractional conversion (1)

- \* Conversion is insertion of an extra variant of complete mind-engine of an individual, in that individual. Two separate personalities reside in the individual's body.
  - Control switched from one to the other at will.
  - Alters the behavior of that individual at will.
  - Can insert and switch between multiple variants.
- \* Fractional conversion is the insertion of an extra variant of a fraction of the mind-engine of an individual, in that individual. The fraction is for a given area of behavior.
  - The fractions can be interchanged (switched) at will.
  - Alters specific behavior of individual in one area, at will.
  - Can insert and switch between multiple fractions.
- Can insert and switch between more than two.



## Conversion, and fractional conversion (2)

- \* Can pre-insert conversions and fractional conversions, then switch at will, or as frequently as desired.
  - Can insert personas or fractions in an entire populace or large fraction.
  - Can massively switch all of them at once.
- \* Instantly changes the society and its behavior.
- With all coordination destroyed, utter chaos reigns.
  - Massive conversions can cause a society to rapidly destroy itself, beginning very suddenly and everywhere in the society.



# Sleeper conversions



- \* Conversions or fractional conversions that are inserted, but not switched and activated for a lengthy period, are called "sleepers".
- \* A few leaders, a fraction of the society, or all the individuals of a society can have sleepers inserted, ready for switching.
- \* Multiple personas or fractions can be in each individual, waiting for switching conversion.
- \* Tailored switching then allows "tailoring" of both the societal responses and the momentum of the converted society's changes and actions.

## The new psychoenergetics



- \* Coupled with QP weapons using engines against mind and mind dynamics.
- \* Coupled with carrier robots each transporting hundreds of mind-control engine subrobots for unleashing.
- \* Now becomes a separate, great strategic threat more ominous than an all-out nuclear strike.
- \* Can be cleverly done so unsuspecting nation(s) never really know(s) what happened, till too late.
- \* Western science, military, and governments are unaware, unprepared, and nearly defenseless.



(SLIDE BRIEFING CONTINUED)

## PART G: CONVERSION

OBLIVION 271

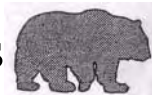


## Conversion: Mind, behavior, and personality control as primary target

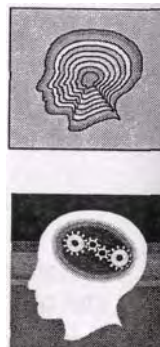
Unified energetics capabilities,  
including robots and engines



### Section contents



- Russian National Style
- Strategic attack plan(s)
- Tests and stimuli expected
- Advance indicators
- Defense and counters
- Conclusions
- Recommendations



# National style (Russian): Chessplayer approach



- \* Develop each weapon type (move) secretly.
- \* Always have elaborate deception plan,
- \* Multiple specific "stimuli" probes tested in advance of planned actual attack.
  - \* Ascertains opponent unaware of "technique" and coming attack(s).
  - \* Attacks lulled opponent unless countered.
- \* Continues rapid revision and improvement.
- \* When countered once, returns with improved techniques, new probing, and new attack(s).
- \* Never quits; always maneuvering to attack and win.



## On elements of the strategic KGB attack plan (1)

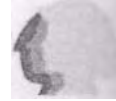


- \* Only outline of probable type plan(s) seen:
- \* Attack to be strategic, massive (incredibly so).
- \* Number of robots/engines may be 100-200 million.
- \* Includes positive nullification of Israel, and of any U.S. retaliatory capability, in first ten minutes.
- \* May include nullification of Brazil and China also.
- \* Includes nullification of entire strategic strike capability of the United States — practical by the robots and QP weapons — in that 10 minutes.





## On elements of the strategic KGB attack plan (2)



- Massive mind control conversions nullify both personnel, facilities, weapons, command and control, support facilities, populace.
  - Wholesale disruption and nullification of government officials, congress, military commands.
  - Total anarchy quickly.
- Defeat prepared in insertion/preparation phase.
- Insertion phase has been largely successful; U.S. to be defeated in operations phase just begun.



## Expected tests and stimuli (1)



- Next generation engines and robots.
- Great new development beyond Captains Button, Svoboda, and Hess.
- Probing should be ongoing now, using conversions at selected levels.
  - One or two (few) high government officials or personnel surrounding or subordinates.
  - One or two personnel in critical facilities (e.g., nuclear).
  - One or two personnel in extremely sensitive intelligence agencies.
- Show multiple personas switching as probe to see if U.S. understands.
- Armada and extreme strategic attack planned for about a year later, after the exposures.



## Expected tests and stimuli (2)



- Some tests should be bizarre.
  - Person performs some bizarre act or action, totally noncharacteristic.
  - Personas deliberately switched.
  - Psychiatrists treat it as "psychiatric problem".
- Overwatch (via robots) assures that system does not understand, with 100% certainty.
- Tests should include such acts as:
  - Compromising national security.
  - Committing espionage but so it is easily detected.
  - Physical involvement such as with nuclear materials, biological warfare agents, drugs, etc.



## Advance indicators expected (1)

- Signature indicators in major command and control facilities, sensitive agencies, critical weapons such as ICBMs and nuclear subs, strange symptoms in computers etc. Tests in Congress, Executive Branch, perhaps in judicial branch, and in JCS.
- Several high officials converted — at least two.
- Series of a few increasingly bizarre conversions.
- Perhaps a Supreme Court Justice or the Vice President, etc.
- Several high military officers converted.
- Conversions (few) in news media and public, slowly increasing.





## Advance indicators expected (2)



- \* After some of the bizarre conversions, will then begin gradual "minor" conversions of public, public officials, military personnel, news media on broader scale.
- \* Opinions and media coverage gradually change.
- \* Similar opinion changes occur in Arab nations, Islamic populaces, Europeans, Africans, China, etc.
- \* Anti-Americanism steadily rises, "normal" terrorist incidents increase, incidents in U.S. increase.
- \* May be a special effect in the extremists of both left and right, racism, all social issues to foment conflict.
- \* Increasing conflict will start to unravel the entire society.
- \* UN should also be unraveled and effectively neutralized by strident differences arising and increasing.

## Advance indicators expected (3): Orchestration



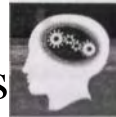
- \* Orchestration of world arena actions by orchestration of leadership of factions, nations, and their actions.
- \* Opinions and media coverage gradually orchestrated.
- \* Changes occur in Arab nations, Islamic populaces, Europeans, Africans, China, etc., centrally ordered.
- \* Orchestrate special effects in the extremists of both left and right, racism, all social issues to foment conflict.
- \* Intensifying conflict starts to unravel targeted societies, control world nations' behavior and actions.
- \* UN, NATO, etc. to be unraveled and neutralized by strident differences arising and increasing.

## Advance indicators expected (4)



- Conversions of foreign high officials, so that friendly nations begin to act as hostile nation
- Strong, even bizarre developments against Israel.
  - Another indicator will be terrorists — stimulated into unleashing major BW strikes etc., in our cities and populace — having unexpected effectiveness due to KGB QP spreading of immune systems in the U.S. populace.
  - Smallpox, anthrax high possibilities.
    - Ebola virus and necrotizing fasciitis, avian flu etc. also possible, as is smallpox.

## Blurring of classifications



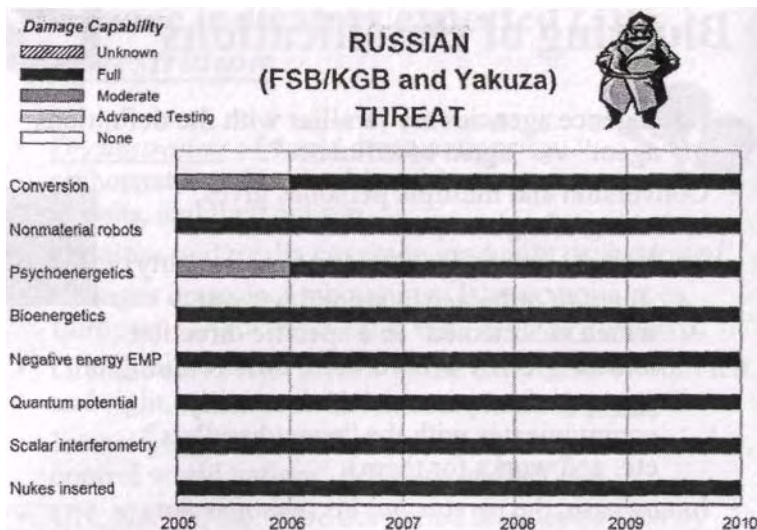
- Intelligence agencies are familiar with the definitions of "agent" vs. "agent of influence".
- Conversion and multiple personas gives switching of a given person between:
  - Normal person (one's normal personality).
  - Agent of influence (a second persona which is "oriented" in a specific direction, to take specific actions at its own volition), or
  - Agent (a third persona which actually communicates with the "agent handlers" etc. and works for them).
- In any case, the person and his personas are manipulated like a puppet on a string.

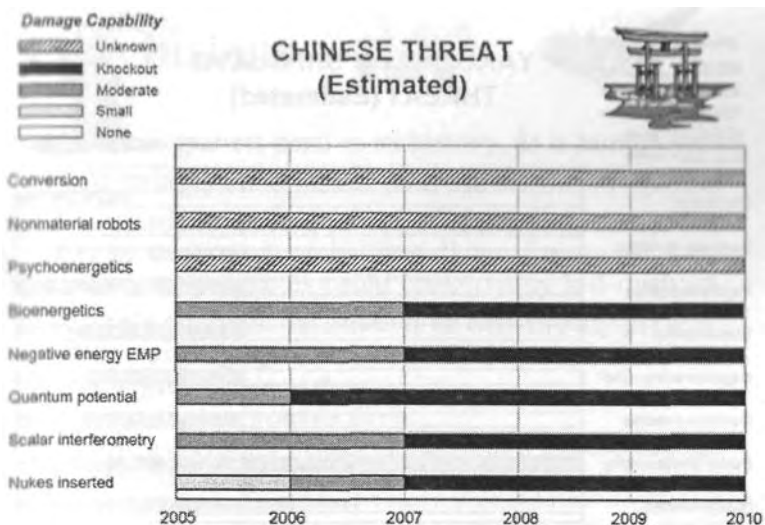


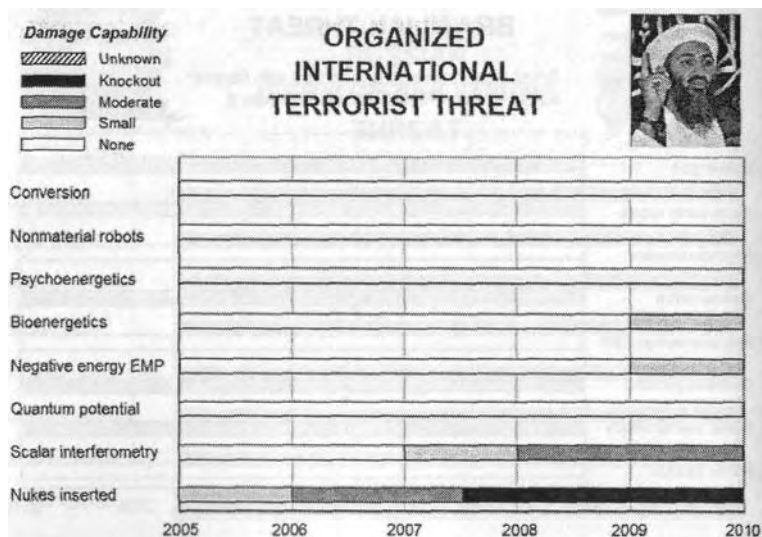
# Defense and counter-measure capabilities



- Very few possible for U.S. at present.
- Urgent that knowledge of the capability and such hostile measures be spread.
- Israelis have some lesser countermeasures which must be rapidly expanded.
- U.S. must have immediate crash national program, with a target completion date of a year only.
- Must have strongest possible Presidential Directive, action, and total support from any agency as needed. Move now, or it will be too late.







# Conclusions

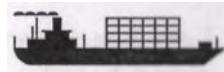


- U.S. is in gravest peril in its history, as is humanity
- Most stringent and fastest possible action is required  
Two-thirds to three-quarters of human population may be destroyed; probably will be. Eventually the entire human species could conceivably self-destruct.
- Multiple strategic destruction threats already present, others converging.
  - Energetics weapons threat.
  - Bioenergetics weapons threat.
  - Psychoenergetics weapons threat, robots and conversions.
  - Terrorists weapons threat (nuclear and BW).
  - Chinese threat.
  - Yakuza/Aum Shinrikyo threat.
  - Orchestrated dissolution of U.S. society, Europe, UN, etc.

## Recommendations (1)



- Crash nuclear scanning of all incoming shipping containers.
- Crash development of energetics science and some new counters in one year or less.
  - \* No more than two years available.
  - Immediate Presidential Decision Directive issued, highest priority.
- Crash development, mass production of fuel-free self-powering electric power systems taking their energy freely from the vacuum. Essential.
  - Immediate cooperation with Israelis for initial counters.



## Recommendations (2)

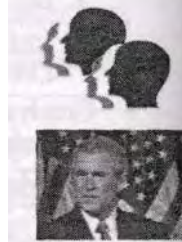
- Crash development of the science and new counters in one year or less. No more than two years available.
- Crash development of Priore-type treatment devices to survive stimulated large terrorist BW attacks, with immune spreading and mass casualties certain. The devices are absolutely essential.
- Immediate "think tank" of most-capable young scientists to clarify the psychoenergetics problem and actions to be taken.
- Brief U.S. public on insertions of nuclear weapons and anthrax already accomplished, so will support the program.



## Final comments (1)

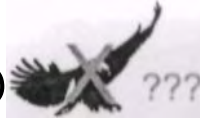


- Less than 3 years before our total destruction.
- Any delay of prompt and drastic national action is fatal.
- Biggest problem is the U.S. scientific and intelligence communities, still sublimely resting in archaic EM theory and electrical engineering. The national labs are nearly useless for the correction effort, as are NSF, NAS, and NAE, DoE, etc.
- Leaders of the two communities must be bluntly shocked as drastically as Stalin shocked his Academy of Science in 1945.





## Final comments (2)



- The President of the U.S. will have to deliver a "meat axe" ultimatum to the Intelligence Agencies, National Academy of Sciences, National Academy of Engineering, National Science Foundation, NIH, the great national laboratories, etc.
- Any science or intelligence leader opposing the program should be immediately relieved under full presidential wartime powers.
- It's either fish or cut bait immediately. It's do or die.
- For those of us who are religious, it is also a time for fervent prayers on behalf of our threatened nation.





(SLIDE BRIEFING CONTINUED)

PART H: APPENDIX; Problems in Western Science



# Appendix 1: Problems in Western science

## Energy science's flaws and limitations



### Energetics: start by correcting the flawed CEM/EE model

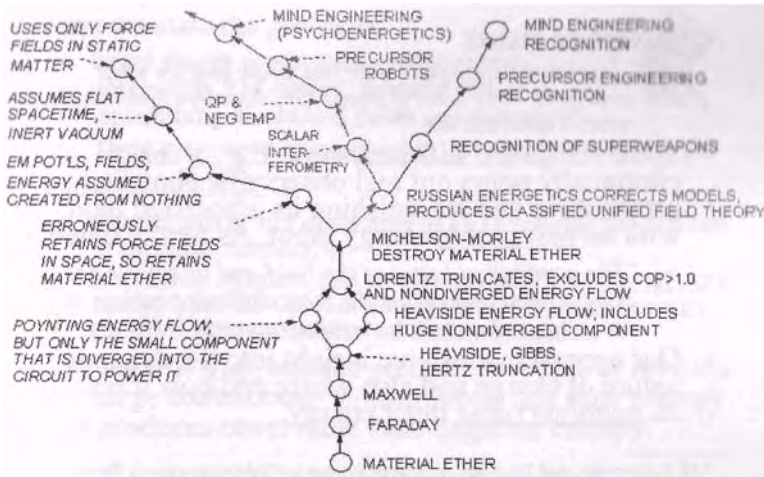


- The classical EM and EE model is seriously flawed, and has been for more than a century.\*
- Soviet energetics started by a massive correction and reworking (and extension) of CEM/EE.
- To understand energetics and energetics weapons, it is essential to first grasp the horrendous errors that are perpetuated in CEM/EE in our universities.
- More extensive systems of electromagnetics have been developed in physics (Yang-Mills theory, higher group symmetry EM, etc.) because CEM/EE does not adequately describe nature.
- The falsity of assuming force fields in space started with basic mechanics several hundred years ago, and was continued into CEM/EE by its founders.

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\* T.E. Bearden, "Errors and Omissions in the CEM/EE Model",  
at <http://www.cheniere.org/techpapers/>

# Seriously flawed path of classical electrodynamics



## Electrodynamics and electrical engineering



- \* There is not now, and there never has been, an EE department, professor, or textbook that knows and teaches what really powers an EM circuit or system.
- Every EM circuit and system is powered by EM energy extracted from the vacuum by the asymmetry of opposite charges on the ends of the source dipole.\*
  - Basis proven in particle physics since 1957.\*\*
  - All EM field energy and EM potential energy in a circuit is extracted from the local vacuum by the source charges  $q$  of the circuit. None comes from mechanical energy input by cranking the shaft of the generator.

\* See Steven Weinberg, *Dreams of a Final Theory*. Vintage Books, Random House, 1993, p. 109-110. Dipolarity includes the classical "isolated" source charge, when the charge's polarization of its surrounding vacuum is accounted. An isolated charge is actually an infinite bare charge in the middle, surrounded by an infinite virtual charge of opposite sign. The difference as seen by an external instrument is finite, and it is the textbook value of the observed "classical charge".

\*\* See C. S. Wu et al., "Experimental Test of Parity Conservation in Beta Decay," *Physical Review*, Vol. 105, 1957, p. 1413. Lee and Yank received Nobel Prize

# Nature of charge is unresolved



- ◆ Silverman stated:

"...curiously enough, we do not know exactly what charge is, only what it does. Or, equally significantly, what it does not do. "\*"

- ◆ Some things are still a mystery. E.g., a charge continually pours out real observable photons, establishing and replenishing its associated field, with no observable energy input. As Sen\*\* stated:

"The connection between the field and its source has always been and still is the most difficult problem in classical and quantum electrodynamics. "

- ◆ Our approach does give insight into the dynamic nature of charge and also where and how it receives its nonobservable input energy.

\* M. P. Silverman. And Yet It Moves: Strange Systems and Subtle Questions in Physics. Cambridge University Press, 1993, p. 127.

\*\* D. K. Sen, Fields and/or Particles. Academic Press, London and New York, 1968, p. viii.

## The Source Charge Problem (1)



- Kozyakov\*\* stated the problem more bluntly:

"A generally acceptable, rigorous definition of radiation has not as yet been formulated. ...The recurring question has been: Why is it that an electric charge radiates but does not absorb light waves despite the fact that the Maxwell equations are invariant under time reversal? "

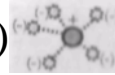
- We solved the problem in 1999 and published it.\*\*

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\* B. P. Kosyakov, "Radiation in electrodynamics and in Yang-Mills theory," Sov. Phys. Usp. 35(2), Feb. 1992, p. 135, 141.

\*\* (a) T. E. Bearden, "Giant Negentropy from the Common Dipole," Proc. Congr. 2000. St. Petersburg, Russia, Vol. 1, July 2000, p. 86-98; (b) — "Extracting and Using Electromagnetic Energy from the Active Vacuum," in M. W. Evans (ed.), Modern Nonlinear Optics. Second Edition, 3 vols., Wiley, 2001; Vol. 2, p. 639-698; (c) —Energy from the Vacuum: Concepts and Principles, Cheniere Press, Santa Barbara, CA, 2002, (d) M. W. Evans, T. E. Bearden, and A. Labounsky, "The Most General Form of the Vector Potential in Electrodynamics," Found. Phys. Lett.. 15(3), June 2002, p. 245-261.

## The Source Charge Problem (2)



- First we state the problem:
  - Every charge continuously radiates real, observable EM energy, forming and replenishing its ordered fields and potentials.
  - There is no input of observable EM energy to the charge.
- Either the charge:
  - Creates energy out of nothing at all (falsifying the first law of thermodynamics), or
  - It receives, reorders, and integrates disordered virtual state energy from the vacuum into ordered observable energy (falsifying the second law of thermodynamics).
- The latter is true, and the second law requires revision. A charge continuously consumes virtual state entropy and produces observable state negative entropy.



## The Source Charge Problem (3)



- \* There is continual:
  - Disordered virtual photon energy input to the charge.
  - Reordering of the input virtual energy, and
  - Coherent integration of the reordered virtual EM energy input into output as quanta (observable photons)
- \* So the charge continually radiates observable photons in all directions, extracting the necessary input energy from the vacuum subquantal fluctuations.
- \* We do not have to discover how to extract EM energy from the vacuum via a "new device"!
- \* Every charge in every circuit and system already does it, freely and continuously.
- \* We just must learn to properly catch and use the freely flowing EM energy from the vacuum.



# EM energy occurs as sets of ongoing EM energy flows



- \* Every EM field and potential — whether "static" or "dynamic" — is a set of ongoing EM energy flows.
  - Whittaker proved it for the scalar potential in 1903.
  - In 1904 he proved any field decomposes into differential functions on two scalar potentials.
  - If we further apply his 1903 decomposition to each of the "base" scalar potentials of the 1904 paper, EM field emerges as a set of energy flows also.
- Hence Whittaker's work also shows that — in producing its fields and potentials — the source charge is pouring out real EM energy continuously.
- Thus EM "static" fields and potentials are ongoing sets of EM energy flows, not "chunks" of static energy.

## The source charge solution: Free EM energy from the vacuum



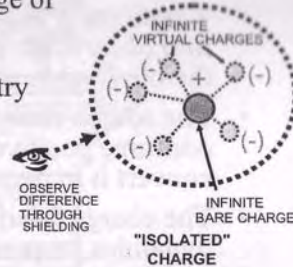
- \* The emitted observable EM radiation continually establishes and replenishes the associated spatial EM fields and potentials of the source charge, spreading at light speed in all directions continuously.
- There is no "static" EM field from a "static" source.
- \* The "static" EM field, its source charge, and the vacuum input form a nonequilibrium steady state (NESS) system of continual, observable photon emissions and flow from the seething vacuum.
- \* So is the "static" EM potential.
- Every EM field, EM potential, and joule of observable EM energy is already a set of ongoing free flows of EM energy extracted from the vacuum.



## A charge is a dipolar ensemble (1)



- An "isolated charge" polarizes its vacuum medium.\*
- Considered from a quantum field theory view, the isolated classical charge is a bare infinite charge in the middle surrounded by an infinite charge of virtual particles, of opposite sign.
- The charge ensemble is thus a special kind of dipolarity. It exhibits asymmetry of opposite charges in its virtual photon exchange *a priori*.
- Both the bare charge in the middle and the surrounding polarized charge are *infinite*. Their difference is *finite*. The two infinite charges will forever sustain the finite difference, so long as the polarization ensemble is not forcibly altered.

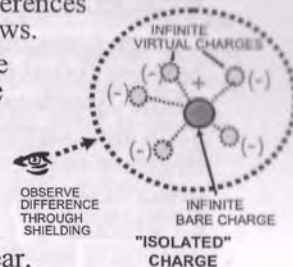


\* For a beautiful discussion of the polarization and much more, see Steven Weinberg, *Dreams of a Final Theory*, Vintage Books, Random House, 1993.

## A charge is a dipolar ensemble (2)

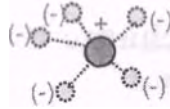


- Because of the broken symmetry of the infinite dipolarity, a set of energy flows with *finite* intensity must therefore emerge from the polarized charge ensemble. Playing with charges means playing with finite differences between appositive infinite energy flows.
- Because the fundamental charges have infinite charge and infinite energy, the flow of energy from the charge will be sustained forever.
- The broken symmetry of opposite charges was proven by Wu et al. in 1959, and a Nobel Prize was awarded to Lee and Yang the same year.
- The observable flow of EM energy is from virtual energy that has "become observable" (been reordered, coherently integrated to the quantum level, and re-emitted as quanta).





# Solution to the source charge problem



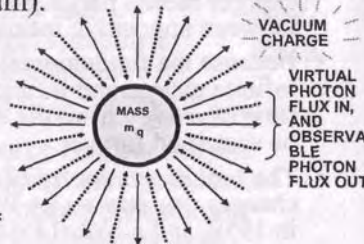
- Opposite charges also are a broken symmetry in the fierce vacuum's virtual particle exchange.
- Continually absorbs virtual EM energy, transduces it into observable EM energy (photons), and then emits the observable photons in all directions in 3-space.
- The source charge and any dipolarity continuously consume positive entropy of the virtual state and convert it to negative entropy of the observable state.
- The charge falsifies the present second law of thermodynamics, requiring its revision, and is an example of a real system continuously producing negative entropy.\*

\* First such known physical system, although permissibility was theoretically demonstrated by D. J. Evans and Lamberto Rondoni, "Comments on the Entropy of Nonequilibrium Steady States," J. Stat. Phys., 109(3-4), Nov. 2002, p. 895-920.

## Where EM energy comes from:



- Every joule of EM energy comes from the vacuum, via broken symmetry of source charges (dipolarities, considering polarized vacuum).
- Charge consumes positive entropy (breaks symmetry) of the disordered virtual state and converts it to negative entropy of the observable state. There is a hierarchy of symmetries.\*
- Charge is first known physical system to continuously produce negative entropy, as theoretically possible\*\*.



\* This violates Klein geometry; Leyton geometry must be used. See Michael Leyton, A Generative Theory of Shape, Springer-Verlag, Berlin, 2001.

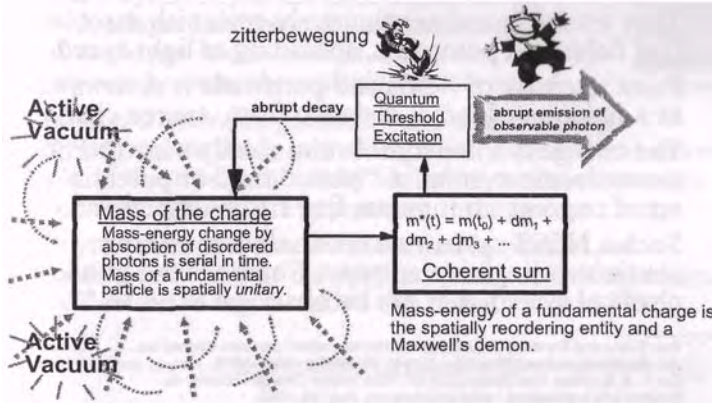
\*\* Evans and Rondoni, "Equilibrium microstates which generate second law violating steady states," Phys. Rev. E, Vol. 50, 1994, p. 1645-1648.



# The magic reordering (negative entropy) process



$$m^*(t) = m(t_0) + dm_1 + dm_2 + dm_3 + \dots$$



The fundamental charged particle continually absorbs disordered virtual state EM energy and re-emits it as ordered observable EM energy



- Each increment absorbed of virtual energy produces a virtual-change of the charge's already unitary mass.\*  
The serial differentials of its mass-energy are spatially re-ordered energy. Each is a change to what is there before.
- The differentials thus coherently sum, so a single, unitary differential of virtual mass-energy (its excitation) grows.
- When the quantum threshold is reached, there is enough new mass-energy to produce a real, observable photon .
- Zitterbewegung\*\* shakes out an observable photon, emitted from the particle in its abrupt excitation decay.
- Fevnmán ratcheting: The virtual excitation process continues again, and the process reiterates unceasingly.

\*This is a true Maxwell's Demon, totally destroying the present second law of thermodynamics.

\*\* Zitterbewegung is a local circulatory motion of the electron presumed to be the basis of the electron spin and magnetic moment. One physical interpretation is given by David Hestenes, "The Zitterbewegung Interpretation of Quantum Mechanics." Found. Phvs.. 20 (10), 1990, p. 1213-1232.

## Virtual photon interactions reveal secret of negative entropy



- Observable photons from source charge continuously radiate away at speed of light.
- They establish and continuously replenish associated EM fields and potentials, spreading at light speed.
- Point intensity of fields and potentials is deterministic, as a function of radial distance from source charge.
- The charge is a nonequilibrium steady state (NESS) deterministic system. A "static" field or potential is a set of ongoing continuous free EM energy flows.
- Such a NESS system theoretically can exhibit continuous negative entropy. Charge is the first known physical system that can be observed to do so.\*\*

\* See Evans and Rondoni, "Equilibrium microstates which generate second law violating steady states." Phys. Rev. E. Vol. 50, 1994, p. 1645-1648.

\*\* See T. E. Bearden, Fact Sheet 2003-01, "The Source Charge Problem: Its Solution and Implications," www.cheniere.org, Aug. 18, 2003.

## Charge falsifies the old second law of thermodynamics to any macroscopic level since the fields and potentials are deterministic (.1)

- Charge exhibits continuous negative entropy production.
  - Falsifies second law, which is based on Klein's 1872 geometry\* and group theoretic methods.
  - Validates theoretical proof that continuous production of negative entropy is possible, as shown by Evans and Rondoni.\*\*
- In Klein geometry, a broken symmetry at one level loses the information at that level, reducing the overall symmetry to that of the lower level. This is a positive entropy process because the ordering is decreased.
- So  $dS > 0$  is arbitrarily "wired in" to Klein geometry!



\*Felix Klein, "Vergleichende Betrachtungen über neuere geometrische Forschungen," 1872.

\*\*D. J. Evans and Lamberto Rondoni, "Comments on the Entropy of Nonequilibrium Steady States." J. Stat. Phys.. 109(3-4), Nov. 2002, p. 895-920.

Charge falsifies the old second law of thermodynamics to any macroscopic level since the fields and potentials are deterministic (2)

- In Leyton's object-oriented geometry,\* a broken symmetry at one level generates a new symmetry at the next higher level, with a layer incorporating all information of the lower levels. This is a negative entropy process because the ordering is increased.
- Leyton's extended geometry and deeper group theoretical methods inherently falsify the present second law of thermodynamics by including negative entropy and the negative entropy action of the source charge.
- Leyton's work is a new revolution in physics, as fundamental as was the original prediction of asymmetry by Lee and Yang, awarded the Nobel Prize in 1957.



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\* Michael Leyton, A Generative Theory of Shape. Springer-Verlag, Berlin, 2001

## Breaking the zero-symmetry

state of the disordered vacuum (1)



- \* Vacuum fluctuations are disordered and subquantal, overall (statistically).
- Hence the overall ordering (symmetry) of the vacuum may be taken as zero. This zero symmetry is a specific symmetry state of the overall vacuum.
- \* But in these fluctuations, local polarizations (opposite charges) continually appear and disappear
- While a local polarization exists, it is a "broken symmetry" of the vacuum state. Hence it is a local violation of the "zero symmetry" of the overall vacuum, and the usual transient fluctuation theorems apply.\*

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\* E.g., see D. J. Evans and D. J. Searles, "Equilibrium microstates which generate second law violating steady states," Phys. Rev. E. Vol. 50, 1994, p. 1645-1648.

# Breaking the zero-symmetry state of the disordered vacuum (2)

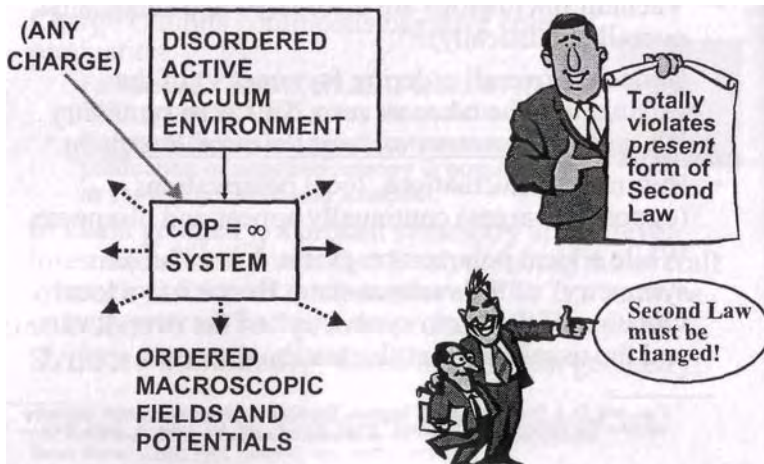
- Equilibrium is the state of maximum entropy of a system.
- In a system in statistical equilibrium, local transient statistical fluctuations continually occur.
- In a local transient fluctuation
  - Equilibrium is broken and entropy is momentarily reduced.
  - The Second Law of thermodynamics is violated and such fluctuation obeys a transient fluctuation theorem.\*
  - Violation can last appreciably — e.g., up to two seconds.\*\*
- Local nonequilibrium steady state interactions with the observable state (as with a fundamental charged particle) can violate the second law of thermodynamics.\*\*\*

\* E.g., see D. J. Evans and D. J. Searles, Phvs. Rev. E. Vol. 50, 1994, p. 1645-1648.

\*\* G. M. Wang et al., Phvs. Rev. Lett.. 89(5), 29 July 2002, 050601.

\*\*\* D. J. Evans and Lamberto Rondoni, J. Stat. Phvs.. 109(3-4), Nov. 2002, p. 895-920.

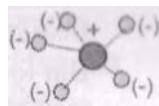
Every charge consumes positive entropy of virtual state and produces negative entropy of observable state



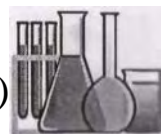
## Biochemistry and EM models (1)



- Medical scientists analyze such things as teratomas in terms of biochemistry and the biochemical model.
- An assembly of charges and charge distributions, with their associated fields and potentials, drives chemistry at base level.
- The force dynamics of the charge assembly are generated by a corresponding assembly of spacetime curvatures and their dynamics (a spacetime curvature engine).
- This precursor engine is the force-free cause that is driving the charge assembly and generating its dynamics, producing all forces in the matter and therefore the chemistry ongoing in that matter.

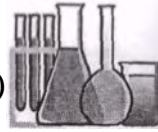


## Biochemistry and EM models (2)



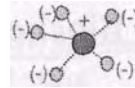
- Force dynamics of the charge assembly are generated by a precursor force-free spacetime curvature engine.
- This precursor engine is the force-free cause that is driving the charge assembly and generating its dynamics, producing all forces in the matter and therefore the chemistry ongoing in that matter.
- Precursor fields and potentials are not modeled in classical U(1) EM theory or quantum electrodynamics.
- CEM/EE model is 140 years old and seriously flawed.
- Precursor force-free EM fields and potentials — and their interaction with charges to produce the force fields and dynamics — can be modeled in unified field theory (such as that of Sachs and that of Evans in O(3) electrodynamics).

## Biochemistry and EM models (3)



- Conventionally a causative EM field in space is "defined" as the diversion from a spatial force field by and during its interaction with charge.
- \* But force exists only in and of mass. Mass is a component of force, by  $F = dp/dt = d/dt(mv)$ .
- \* There is no force field in space. Assuming one in space substitutes "effect in matter" for "matter-free ST curvature cause" — a logical non sequitur.
- CEM/EE also assumes charged matter (the material ether) filling all space, and calculates and uses only the force field existing in that assumed charged matter.
- CEM/EE does not and cannot calculate the force-free precursor EM field in space — the actual EM field.

## How CEM/EE erroneously assumes force fields in space



- \* Jackson\* shows how electrodynamicists simply avoid (and dispose of) the problem of a force-free, massless EM field in space, rather than a force field:



"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field. "

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\* J. D. Jackson, Classical Electrodynamics. 2nd Edn., John Wiley & Sons, New York, 1975, p. 249. Jackson is one of the leading classical electrodynamicists and either highlights or clarifies many issues.

## U.S. scientists do not calculate the EM field in space, but only in charged matter



- So CEM/EE still erroneously assumes a material ether and force fields in space. Ignores the precursor field.
- There is not now and there never has been an EE department, EE professor, or EE textbook that teaches how to calculate the (precursor) EM field in space.
- This is a known major flaw in the CEM/EE model. It has been pointed out in one fashion or another by many physicists such as Wheeler and Nobelist Feynman.
- The CEM/EE model is seriously flawed, and the flaws emerge in biochemistry and medical science.
- At least Jackson clearly states the gross error that is still accepted and used by CEM/EE.

\* J. D. Jackson, Classical Electrodynamics. 2nd Edn., John Wiley & Sons, New York, 1975, p. 249.

## Correction to basic mechanics and a solution to Feynman's problem of defining force\*



- $F = \partial/\partial t(mv)$ , so mass is a component of force.
- Force and force fields exist only in matter, not in massfree space.
- There is no separate "massless vector force in space" acting upon a separate mass.
- Thus in EM models, cannot legitimately use force field as a causative agent in space, as present models do.
  - ♦ EM field in space is a massless, force-free causative agent (curvature of spacetime) — a precursor to force field in matter.
  - \* Force-free EM field's ongoing interaction with charged matter identically is a force field in that matter. Force is the interaction effect in and of the charged matter itself, not the cause.



\* Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, Reading, MA, Vol. 1, 1964, p. 2-64, 12-2; Vol. 2, p. 1-3.

# What physics has to say about EM field in space

- \* Feynman\* clearly states that the EM field in space is not a force field.
- It is a characteristic of space that produces a force field when and if it interacts with charged matter.



"...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force is called an electric field. "

"We may think of  $E(x, y, z, t)$  and  $B(x, y, z, t)$  as giving the forces that would be experienced at the time  $t$  by a charge located at  $(x, y, z)$ , with the condition that placing the charge there did not disturb the positions or motion of all the other charges responsible for the fields. "

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\*Feynman, Leighton, and Sands, The Feynman Lectures on Physics. Addison-Wesley, Reading, MA, Vol. 1, 1964, p. 2-4; Vol. 2, p. 1-3.

## Maxwell's theory was curtailed\*



"[T]he A field [for the potentials] was banished from playing the central role in Maxwell's theory and relegated to being a mathematical (but not physical) auxiliary. This banishment took place during the interpretation of Maxwell's theory... by Heaviside... and Hertz. The 'Maxwell theory' and Maxwell's equations' we know today are really the interpretation of Heaviside... Heaviside took the 20 equations of Maxwell and reduced them to the four now known as 'Maxwell's equations'. "

COMMENT: Maxwell's primary theory was 20 quaternion-like equations in 20 unknowns.\*\*

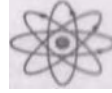
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\*Terence W. Barrett, "Electromagnetic Phenomena Not Explained by Maxwell's Equations," A. Lakhtakia, ed., Essays on the Formal Aspects of Electromagnetics Theory. World Scientific Publishing, River Edge, NJ, 1993, p. 11 and generally p. 6-86.

\*\* James Clerk Maxwell, "A Dynamical Theory of the Electromagnetic Field," Royal Society Transactions, Vol. CLV, 1865, p 459



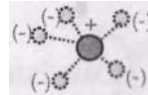
## Necessary EM corrections\*



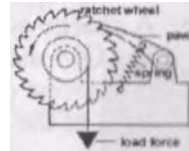
- Higher symmetry, non-Abelian electrodynamics models have been developed in particle physics
- The new approach extends these models to also incorporate general relativity, thus producing a unified field theory\*.
- In the new approach, spacetime curvature engines are perfectly natural and understandable, and can be directly modeled and engineered by advanced theorists.
- \* The theory is sufficiently advanced and robust that technology and engineering can now advance.
- \* This would be a great leap forward for biochemistry and medical science, particularly in therapeutic methods.

\* Sachs's unified field theory implemented by  $O(3)$  electrodynamics developed by Evans presently is suitable to use. Numerical methods are often required, particularly when asymmetry is invoked, Lorenz symmetry is violated, and Lorentz-invariant equations cannot describe all the dynamics and results.

## A fundamental charged particle is a Feynman ratcheting system\* (1)



- Assume fundamental charge at ZPE equilibrium state (lowest quantal level).
- Disordered virtual photons from vacuum are absorbed serially by the fundamental charged particle. This is a reordering of the absorbed energy in 3-space and time.
  - Mass of a fundamental particle is already unitary in 3-space.
  - The unitary mass increases by little serial differential increases
- \* The serial integration completes the negentropy process.
- On the mass-energy, the same type of virtual energy differential thus appears in serially increasing order. The mass-energy of the charge at lowest quantum level (ZPE equilibrium state) has a series of coherently integrating differential increases in the virtual state.

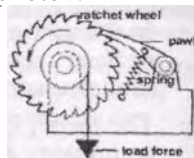


\* E.g., see Jack Denur, "Modified Feynman ratchet with velocity-dependent fluctuations," posted on web at <http://www.ipmt-hpm.ac.ru/SecondLaw/down/170.pdf>.

## A fundamental charged particle is a Feynman ratcheting system (2)

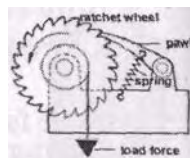


- When the integrating differential virtual state mass-energy reaches the next higher quantum energy level, the violent zitterbewegung (jitter) of the absorbing charged particle abruptly initiates emission of an observable photon.
  - The emission abruptly decays the integrated excited state of the charged mass back to zero reference (i.e., the ZPE equilibrium state at base level).
  - Process continually reiterates since virtual disordered photons are continually absorbed in serial order by each charge, driving the process. This is a Feynman ratcheting effect.
- The charge continually emits real observable photons in all directions, without any observable energy input. The input is a "sorted and reordered" virtual state energy input. The charge is a Feynman ratchet system, producing continuous negative entropy from positive energy and its "ratcheting" action.

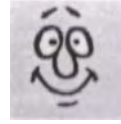


## Consistent with ZPE concepts, thermodynamics, and EFTV concepts (1)

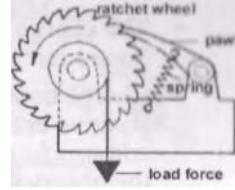
- A charge at zero absolute temperature has QM movements and energy. This is the lowest quantal level, called "zero-point energy" state of the observed charged particle.
- The interaction of the charge — its absorption of disordered subquantal virtual energy fluctuations, their conversion to differentials of unitary mass-energy with serial ordering, and coherent integration of the mass-energy differentials — excites the charge to the next higher quantum level, moving it out of ZPE-level equilibrium.
- The excited (potentialized) charge is then permitted to decay back to ZPE level, emitting an observable photon.



Consistent with ZPE concepts, thermodynamics, and EFTV concepts (2)



- Continual iteration of this "ratcheting" action — converting absorbed virtual state energy to emitted observable state energy and reiterating — provides continual emission of real photons by the charge, where energy of the emitted photons has been "lifted" from the virtual state vacuum.
- There is no "observable" (quantal) energy input because the required energy input is in subquantal form.
- \* ZPE consistency is upheld, thermodynamicists are happy, and EFTV enthusiasts are happy.
- Electrodynamicists should be happy that the long-vexing source charge problem is finally resolved!



## Nonequilibrium steady state system

- \* A nonequilibrium steady state (NESS) system can:
  - Self-order.
  - Self-oscillate or self-rotate.
  - Output more energy (as powered loads, etc.) than what the operator alone inputs. The excess energy input comes directly from the active environment, as free energy transfer.
  - Power itself and its load (its associated observable fields and potentials in space). The input energy comes from the active vacuum environment, via the source charges, and the operator need not pay for it.
  - Exhibit negative entropy.
- \* The charge with its subquantal vacuum energy input and its observable EM energy output is a NESS system providing freely flowing EM energy from the vacuum.



## All EM energy is free: EM fields and potentials are sets of ongoing and free EM energy flows (1)



- The charge is a nonequilibrium steady state (NESS) system. So are its "static" fields and potentials.
- Charge continually consumes vacuum's positive entropy at the virtual state level, and produces negative entropy output at the observable level.
  - \* Transduces absorbed disordered virtual state energy (from vacuum subquantal fluctuations) into observable state energy (real observable photons, real EM fields).
  - \* Falsifies the old second law of thermodynamics, requiring its correction and extension.
- Continuously produces negative entropy observably, as shown theoretically possible by Evans and Rondoni.\*



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\* D. J. Evans and Lamberto Rondoni, J. Stat. Phys., 109(3-4), Nov. 2002, p. 895-920.

## All EM energy is free: EM fields and potentials are sets of ongoing and free EM energy flows (2)



- A truly "static" EM field does not exist\*\*;
- Every EM field is a set of NESS flows of energy\*\*\* from its associated source charge or dipole.
- All we have to do is learn how to properly intercept, collect, and freely utilize the freely flowing EM energy.
- The collection and utilization process is an asymmetrical process a priori.
- Lorentz made the CEM/EE equations symmetrical so that simpler Lorentz-invariant equations could be used.
- The first requirement for COP>1.0 EFTV systems is to violate Lorentz symmetry in one's circuits, so that non-invariant equations cannot model their operation

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\* See Tom Van Flandern, *Phys. Lett. A*, 250, Dec. 21, 1998, p. 1-11.

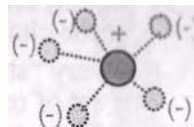
\*\* E.T. Whittaker, 1903 and 1904 (ibid.).

\*\*\* Many methods found by inventors are given in T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, Cheniere Press, 2002. For rigorous proof that violating the Lorentz symmetry condition allows EFTV systems, see M.W. Evans et al., *Physica Scripta*, Vol. 61, 2000, p. 513-517.

# Importance of solution to source charge problem (1)



- The source charge transduces disordered virtual fluctuation energy from the vacuum into real, usable EM energy flows comprising its fields and potentials.
- Extracting usable energy from the vacuum, any amount, anywhere, is straightforward. Every charge already does it freely.\*



- Just assemble some charge or a dipole. It will freely radiate real EM energy indefinitely, so long as it exists.
- Use a collecting circuit having overall broken Lorentz symmetry.
- Potentialize the circuit with charges pinned so  $dq/dt = 0$ .
- When current flows and the collected energy is dissipated in the load, the source of potential and energy flow must not be connected into that external circuit as a load to be destroyed.

\* Again, for examples of such systems produced by inventors, see T. E. Bearden, Energy from the Vacuum: Concepts and Principles. Cheniere Press, 2002. E.g., any EE department can readily build the Takahashi magnetic Wankel engine (suppressed by the Japanese Yakuza), which kills its own back mmf and thus produces a nonconservative rotation force, continually driving the engine and powering its load. It may also be readily made self-powering.

# Importance of solution to source charge problem (2)



- \* There is no scientific excuse whatsoever for an electrical engineering that implicitly assumes that
  - Every EM field and potential (and every joule of EM energy) is freely created by the source charge from nothing at all.
  - EM fields and potentials are "static".
  - Circuits must be built Lorentz-symmetric so as to deliberately self-destroy their own dipolar source of free EM energy from the vacuum.
  - EM energy occurs in "chunks" called joules. Instead, it occurs in free flows of EM energy — in joules per second.
  - EM fields in space are force fields.
- We must rethink our concept of EM energy and its use. The old "first principles" are seriously flawed.



## EM energy is free, but we've not yet learned to use it properly! (1)



- Every charge is already a "free gusher of EM energy" that will flow forever if the charge is left undisturbed.
- Every "static" EM field or potential is thus a set of ongoing steady-state EM energy flows.\*
  - Van Flandern's analogy applies.\*\*
  - A "static" EM field or potential is like an unfrozen waterfall, rather than like a frozen waterfall as erroneously portrayed.
- Having the source connected to its external circuit while current is flowing destroys the source dipolarity — and the free flow of energy from the vacuum — faster than the load is powered.

\* E. T. Whittaker, Math. Ann. Vol. 57, 1903, p. 333-355 and Proc. Lond. Math. Soc. Series 2, Vol. 1, 1904, p. 367-372 proved that any EM field or potential is a set of ongoing bidirectional EM energy flows.

\*\*Tom van Flandern. Phvs. Lett. A 250. Dec. 21, 1998, p. 8-9.

## EM energy is free, but we've not yet learned to use it properly! (2)



- Imposition of Lorentz symmetry to allow simpler (Lorentz invariant) equations is wrong. Building only symmetric circuits limits them to COP < 1.0, and keeps the meter on the gas pump and the meter on one's house.
- Having the dipolar source connected to its external circuit while current is flowing:
  - Destroys source dipolarity — and the free flow of energy from the vacuum.
  - Uses half the free EM energy collected on circuit charges to destroy source dipole and cut off free energy flow from vacuum.
- We have not learned how to intercept work-free potential energy flow, collect it for free without current flowing, then disconnect source and allow current to flow, freely dissipating the freely collected energy to power external loads "for free".

# Energy, Spacetime, Vacuum VPF



- There really has been no satisfactory definition of energy.
- Energy change is measured, not energy per se.
- ♦ Energy can be defined in either of two ways:
  - Spacetime is identically energy.
  - Virtual particle flux (of the vacuum) is identically energy.
  - In either case, the energy density is enormous.
- \* A "change of energy" thus means two things:
  - A change (i.e., distortion or curvature ) of spacetime.
  - A change in the virtual particle flux (VPF) of the vacuum.
- ♦ The "field" is a region of distorted spacetime and altered VPF.
- \* Fields and potentials decompose into sets of energy flows. So they are regions of flowing changes in spacetime distortion, and flowing changes in vacuum VPF.



## The entropy concept Implicitly assumes its own contradiction (1)



- Price points out the problem\*:

"A century ago Ludwig Boltzmann and others attempted to explain the temporal asymmetry of the second law of thermodynamics. The hard-won lesson of that endeavor — a lesson still commonly misunderstood— was that the real puzzle of thermodynamics is not why entropy always increases with time, but why it was ever so low in the first place. "
- For a system initially in equilibrium, the concept of further entropy production implicitly assumes a previous negentropic process has occurred to provide additional usable (controlled) order (usable energy) in the system, that is to be disordered and decontrolled.

\* H. Price, Time's Arrow Today. S. F. Savitt, Ed., Cambridge University Press, 1995, p. 66-94.

## The entropy concept implicitly assumes its own contradiction (2)



- Scientists balk at the necessity for initial negative entropy production, and largely avoid facing it.
- Usually they arbitrarily invoke positive entropy occurring in the external environmental system, and thus furnishing the energy — to the system — in work-free manner but with work in the environment.
- This just moves the problem to an outside system (the environment) and does not solve it.
- Scientists stared at the necessity for equal negative entropy first occurring, and then walked away, rather than dealing with it\*.

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\* By his hierarchies of symmetry and change to geometry, Leyton solved the problem.  
See Michael Leyton, A Generative Theory of Shape, Springer-Verlag, Berlin, 2001.

## Importance of Leyton geometry\*

- We also must upgrade thermodynamics by adopting Leyton geometry instead of the limited 1872 Klein geometry.
- Leyton's work proves negative entropy as the other "missing" half of the Second Law of thermodynamics — the half which is transduction of entropy into negative entropy, as exhibited by the source charge and its deterministic EM fields and potentials and their energy.



Dr. Michael Leyton

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\* See Michael Leyton, A Generative Theory of Shape, Springer-Verlag, Berlin, 2001.  
Leyton's object-oriented geometry uses more advanced groups and group operations than the old 1872 Klein geometry. Klein geometry has entropy "welded in", so to speak. In Leyton geometry, this is not the case; rather, negative entropy is also included, particularly in Leyton's hierarchies of symmetry.



# The Leyton effect:

- In Klein geometry, broken symmetry at a given level loses the information at that level and reduces the overall group symmetry. This is basically a "wired-in entropy operation."
- In Leyton geometry, broken symmetry at a given level automatically creates a new symmetry at the next higher level, with a layer that captures all the lower level information. Hence a broken symmetry increases the overall group symmetry. This is a negative entropy operation a priori.
- Leyton geometry thus produces a hierarchy of symmetries, missing from Klein geometry.



## Leyton's geometry solved the overall problem of thermodynamics

- The overriding thermodynamics problem is:  
If the second law is correct, and entropy can only stay the same or increase, then how did the entropy of the universe ever get so low in the first place? And how is it so low now?
- How does a system, once reaching equilibrium (maximum entropy), ever depart from equilibrium to lower entropy?
- The old second law also does not consider negative energy and negative energy EM fields — the so-called "dark energy" of the universe. It does not account for negative mass matter — the so-called "dark matter" of the universe.
- Problem recognized — and unsolved — for a century.
- It cannot be solved unless there is also a law of negative entropy production, which immediately requires hierarchies of symmetry. Leyton's work provides that missing law.



# Correction of the second law of thermodynamics (1)



- We have proposed the following correction:  
 "For a system initially in equilibrium, first some negative entropy is produced in the system, departing it from equilibrium and lowering its entropy so it has some controlled order (energy) to be decontrolled and disordered. In interactions thereafter, the entropy remains the same or increases, unless additional interactions producing negative entropy arise and interfere. "  
 \* This statement is consistent with experiment (e.g., Wang et al.\*), Leyton geometry,\*\* and the source charge's ratcheting production of its associated EM fields and potentials and their energy.\*\*\*

\* G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," Phys. Rev. Lett. 89(5), 29 July 2002, 050601.

\*\* Michael Leyton, A Generative Theory of Shape. Springer-Verlag, Berlin, 2001.

\*\*\* T. E. Bearden, Energy from the Vacuum: Concepts and Principles. 2002.

# Correction of the second law of thermodynamics (2)



- Present second law is ( $0 < dS < +\infty$ ), which states that the system entropy can only stay the same or increase.
- System in equilibrium is in state of maximum entropy. Thus to produce entropy, the system must first depart from equilibrium, lowering its entropy.\*
- This is a negative entropy operation ( $-\infty < dS < 0$ ) and it produces a "potentialized" system or "excited" system not in equilibrium.\*
- The excited or potentialized system can then entropically decay back to equilibrium condition, if no further excitation or potentialization (negative entropy operation) occurs to interrupt it. This is ( $0 < dS < +\infty$ ) — the present old second "half-law".

•If the energy is furnished to the system in the same form as the system's potential energy that is changed in magnitude, no work is done. This is gauge freedom, which is inherently negentropic. If the energy is furnished in a different form, work is required in order to change the form of the input energy.

## Correction of the second law of thermodynamics (3)



- The two serial actions of negative entropy and positive entropy form a ratcheting process, similar to Feynman's ratchet.
- The second law has always been an oxymoron implicitly assuming its own contradiction has first occurred but has not been accounted.
- The new, complete second law is just  $(-\infty < dS < +\infty)$ , and it states that in an interaction the system may produce negative entropy, positive entropy, or stay at the same entropy level — all depending upon the nature of the interaction.



## Correction, of the second law of thermodynamics (4)

$$W = Vq$$

- New, corrected second law is  $(-\infty < dS < +\infty)$ .
- In macroscopic systems, often potentialization and dissipation are serial, discrete operations. In that case:
  - First  $(-\infty < dS < 0)$  occurs separately.
  - Then  $(0 \leq dS < +\infty)$  occurs separately.
- So in this special case the new second law is:  $(-\infty < dS < +\infty) = (-\infty < dS \leq 0) + (0 \leq dS < +\infty)$
- The implicitly assumed unaccounted negative entropy operation is clear, as is the proper meaning of the old second "half-law". It was just entropic decay back to equilibrium, of a previously excited system.
- Now electrical engineering can proceed with negative entropy engineering, directly.



## Correction of the second law of thermodynamics (5)

$$W = Vq$$

- The new second law and revised first law allow self-powering electrical power systems taking their input energy freely from the vacuum. The source charge is one such self-powering EM system.
- From any fixed source of potential  $V$ , given sufficient  $q$  any amount of potential energy  $W$  can be freely collected, by  $W = Vq$ , or for a given  $q$  by using repetitive collection-dissipation with the source connected only in collection.
- In short, just use a similar "ratcheting" operation as shown by the source charge.



Implications for electrical power systems:  
A permanent solution to the energy crisis (1)



\* For  $(-\infty < dS < +\infty) = (-\infty < dS \leq 0) + (0 \leq dS < +\infty)$ :

- No law of nature states we ourselves must pay for the extra potentialization energy  $(-\infty < dS \leq 0)$ . Pure asymmetric regauging (voltage amplification) can supply it.
  - Conservation of energy merely requires that something (such as the environment) must furnish it, since we dissipate it by  $(0 \leq dS < +\infty)$ . Any source of potential can give it freely.
  - We can. insist on furnishing it by brute force, paying for it.
  - Or we can allow nature to furnish it freely — including from the vacuum.
- \* EM energy in nature occurs in steady, inexhaustible free energy flows from all source charges and dipoles. This allows use of work-free asymmetric regauging.

## Implications for electrical power systems: A permanent solution to the energy crisis (2)

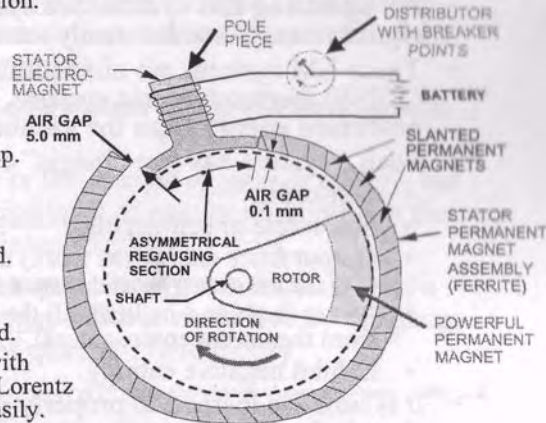


- We may therefore freely collect extra EM potential energy from the gushing energy flows coming from the circuit charges or system charges.
- By adroit switching, this potential energy can be dissipated in an external load to "power" it, without using half of it to "kill the source dipolarities".
- \* We need pay only a little for the "switching and control" (S&C) energy dissipated.
- « From the output load energy, we can extract that small S&C energy via positive feedback from the load output to the S&C unit, so the S&C unit is a small part of the "powered load".
- \* In that way, the working system is also self-powered by energy freely extracted from the vacuum.

## Example: Any EE department can build a self-powering magnetic Wankel engine (1)



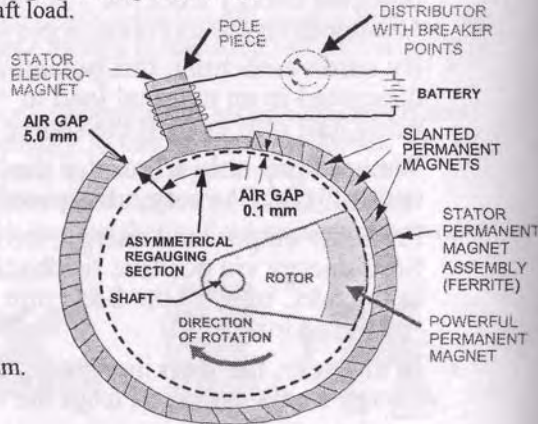
- \* It is a rail gun wrapped nearly in a complete circle, reducing back mmf to a very small open section.
- \* A pole piece with coil covers gap. A very small trickle current is in the coil.
- \* Current is sharply broken as rotor enters gap.
- \* Lenz law surge of current creates magnetic field that momentarily overrides back mmf field.
- \* Rotor passes through a zero "back mmf" field; even a forward mmf field.
- \* Pay a little, get engine with no back mmf, violating Lorentz symmetry. COP > 1.0 easily.



Example: Any EE department can build a self-powering magnetic Wankel engine (2)



- Easily made self-powering by adding a small DC generator as part of shaft load.
- Once at speed, an automatic control circuit switches battery out of loop and switches in the generator.
- Wankel then powers its load and itself.
- It is a nonequilibrium steady state (NESS) system, permitted to be self-powering.
- All energy input is furnished by the vacuum.



Since EM fields and potentials are sets of energy flows:



- All operating EM systems are systems far from equilibrium. Consider steady state condition:
- These EM systems are nonequilibrium steady state (NESS) thermodynamic systems, freely receiving their processed energy from the vacuum environment.
- Such a system has five "magic" characteristics. It can:
  - \* Self-order.
  - \* Self-rotate or self-oscillate.
  - \* Output more energy (as work) than the operator inputs (the excess energy input comes from the environment).
  - \* Power itself and its load (all the energy input comes from the active environment).
  - \* Exhibit negative entropy.
- It is time we learned to properly utilize our NESS EM electrical power systems, rather than killing them.

## Why Yakuza suppresses the Wankel magnetic engine and several others

- About two years from now, with scalar interferometry the Yakuza plans to disable the centralized electrical power system of the U.S., to never work again.
- As total economic collapse looms, U.S. will finally boot its scientific community hard, and there will be desperate search for a quick solution.
- Through the Japanese government the Yakuza will offer Japanese self-powering systems as the quick answer.
  - \* Draws off all available desperation funding that is "last ditch" U.S. effort to prevent total economic collapse.
  - \* By delivering only a few systems and very slowly, that "last ditch" U.S. science effort will be thwarted.
- As a result, there will be a total U.S. economic collapse, which — coupled with conversions, nuclear explosions in cities, anthrax attacks, etc. — will finish off the U.S.
- Yakuza then kills remaining members of U.S. population.



## Correcting an erroneous interpretation of the first law of thermodynamics (1)



- The First Law is erroneously thought to define any change in magnitude of an external parameter of the system as work a priori.\*
- Potential energy of a system in a given form is such a parameter.
- Work rigorously is the change of form of energy, but not change of magnitude of energy remaining in the same form. The latter requires no work.
- Mere change of magnitude of potential energy of a system is regauging, and it is work-free by the gauge freedom axiom of quantum field theory.

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\* E.g., see Ralph Baierlein, Thermal Physics. Cambridge University Press, 1999, p. 2.



## Correcting an erroneous interpretation of the first law of thermodynamics (2)

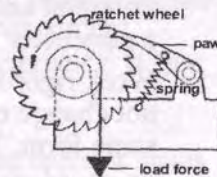


- \* Present interpretation of the first law excludes gauge freedom — a major non sequitur requiring correction.
- \* If energy is input — by the external environment or fixed source of potential — to the system in the same form as the external parameter's energy, then no work is required.
- In that case, the change of the external parameter's magnitude is by work-free asymmetric regauging.
- If energy is freely input to the system in a different form than the external parameter's energy, then work must be done to change the form of the input energy, before it can change the magnitude of the external parameter.
- \* Properly switched and controlled, a potentializing source of freely flowing EM energy can furnish an unlimited amount of freely collected potential energy, indefinitely.

## Correcting an erroneous Interpretation of the first law of thermodynamics (3)



- $W = \phi q$  shows that any amount of energy  $W$  can be freely collected from a fixed scalar potential  $\phi$ , by charges  $q$ , if the amount of charge  $q$  intercepting the energy (deviating it from the flows comprising  $\phi$ ) is freely variable.
- If the amount of charge  $q$  is also fixed, any amount of energy  $W$  can still be freely collected from  $\phi$  by ratcheting iterative static collection of energy into the circuit and dynamic dissipation of energy from the circuit to power loads.
- Similarly, any amount of emf force can be freely collected from a fixed E-field by  $F = Eq$ .
- Presently only the intensity of the force field and the potential are defined, and then only as how much is diverged from the actual spatial EM field or potential by a unit point static charge assumed at each and every point.





## Correcting an erroneous interpretation of the first law of thermodynamics (4)



- \* At best, the present calculation of "the field" is only an "indication" of the point intensity of field and potential, for interaction with static charges. It's actually a statement on reaction cross section of the unit point static charge.
- \* If the charge self-resonates at the frequency of the input energy, its interception (divergence) of energy increases, resulting in a different "field intensity defined" for the same "field". E.g., for the same amount of charge, the resonance case generates 18 times as much output energy from the same input as does the static charge case,\* with no change in the operator's input. I.e.,  $COP = 18$ .
- \* Presently no one calculates "the field" or "the potential" a priori, but only its "dependent point intensity" as determined for static charges.

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\* See Craig F. Bohren, "How can a particle absorb more than the light incident on it?" Am. J. Phys. 51(4), Apr. 1983, p. 323-327.

## Contrary to popular opinion, perpetual motion is permissible and well-known



- \* Newton's first law of motion is the law of perpetual motion.
  - An object placed in motion remains in that state of motion in a straight line, unless changed by an external agent.
  - With no force interruption, the state of motion is perpetual.
  - The object needs no input of energy, and it does no work.
- Solid state physics students do perpetual motion experiments.
  - Once initiated in a superconducting ring, a persistent superconducting current will continue perpetually.
  - Careful measurements and proper statistical analysis indicates a half-life expectancy of some  $10^{23}$  years.\* The accepted age of the universe is about  $1.4 \times 10^{10}$  years.
  - The persistent ring current will last a great many orders of magnitude longer than the present universe has existed.

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\* Charles Kittel, Introduction to Solid State Physics. Seventh Edition, Wiley, New York, 1996, p. 359.

Common objection to  $COP > 1.0$  power system as a forbidden perpetual motion machine is nonsense (1)

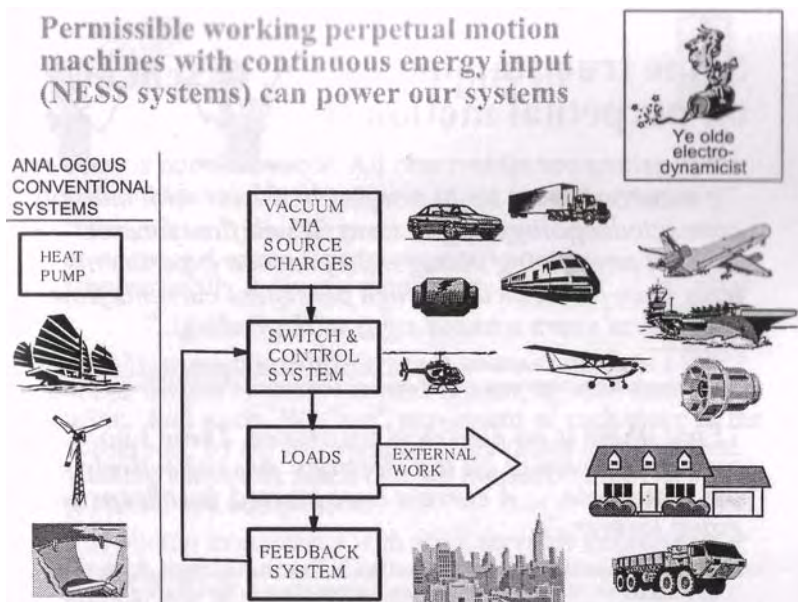
- Max Planck stated the erroneous objection this way:  
"It is in no way possible, either by mechanical, thermal, chemical, or other devices, to obtain perpetual motion, i.e., it is impossible to construct an engine which will work in a cycle and produce continuous work, or kinetic energy, from nothing. "
- The statement contains two premises, one false and one true. It erroneously equates the two, and assumes that this proves the false premise. That is a simple logical non sequitur.
  - \* False premise: Perpetual motion is impossible. Falsified by Newton's 1st law and today's persistent superconducting experiments in solid state physics labs.
  - \* True premise: No engine can do continuous work in a cycle without energy input.
  - \* The "i.e.,..." erroneously equates the two as the same thing. That is a non sequitur.



Common objection to  $COP > 1.0$  power system as a forbidden perpetual motion machine is nonsense (2)

- That this rather inane non sequitur has not been noticed for more than 100 years of using it for "knee-jerk" condemnation is inexplicable.
- Perpetual motion has nothing to do with performing work or receiving extra energy input. It is simply Newton's first law of motion.
- Perpetual motion is experimentally proven. From several sources, one can even purchase a standard kit and perform a successful perpetual motion "persistent superconducting current" experiments oneself.
- Can have a perpetual motion machine doing work, if:
  - \* Necessary energy is received (as from the vacuum).
  - \* On the average the system is a NESS system.
- E.g., one can have a "self-powering" EM power system.





An interesting fact: The entire scientific community can be wrong for more than a hundred years



- In science model errors, often simple foundations are wrong, rather than the complicated mathematics.
- E.g., for more than 100 years the scientific community has automatically condemned "perpetual motion" and "dirty old forbidden perpetual motion machines".
- It seems that no one has previously subjected the typical nonsense statement to a simple sophomore logic analysis
- Indeed, it continues to be used to denigrate EFTV, cold fusion, and other researchers and to slander them.
- To borrow a phrase from Nikola Tesla:  
 "... [Eventually] it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history. "

## Some true statements on perpetual motion (1)



"If a current is set up in a superconductor with multiply connected topology, e.g. a torus, it will flow forever without any driving voltage. (In practice experiments have been performed in which persistent currents flow for several years without signs of degrading). "

Peter J. Hirschfield, U. of Florida, Physics Teaching Notes. Chapter 5, Superconductivity, <http://www.phys.ufl.edu/~pjh/teaching/phz7427/7427notes/ch5.pdf>.

"First, there is no electrical resistance. There's no resistance because all the electrons are collectively in the same state. ...A current once started, just keeps on going forever."

Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics. Vol. III, Quantum Mechanics, Addison-Wesley, Third Printing 1966, p. 21-08. Feynman was speaking about persistent superconducting currents.

## Some true statements on perpetual motion (2)



- Roy\* sums it up elegantly:

"It follows from Newton's laws that an isolated system in motion, on which no [net] force or torque is acting, exhibits precisely perpetual motion of the second kind. An example of perpetual motion of the second type is the orbiting of electrons around the atomic nucleus. ... perpetual motion of the second type is common on atomic and celestial scale; however, such a motion is not common in everyday life. The best known example of perpetual motion in everyday life is superconductivity, in which a current circulates ceaselessly in a wire loop without a battery. "

\* Bimalendu N. Roy, Fundamentals of Classical and Statistical Thermodynamics. Wiley, Chichester, 2002, p. 59.

# The march of time in physics



- Time is not observable. All observables are spatial, of spatiotemporal. No observable exists in time, a priori.
- "Observation" is a  $\partial/\partial t$  process imposed upon an ongoing 4-space (spatiotemporal) process. Dimensionally it gives a momentary snapshot:  

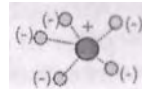
$$\partial/\partial t (L^3 T) = L^3$$
- An observation yields a frozen 3-space snapshot at one instant in time. The next instant, another snapshot is taken. And so on. We "see" movement of each piece of the "observed" by (a) its continual observation at high speed, yielding snapshots much like the frames of a movie, and (b) recall and comparison.
- The photon interactions with an observable generate its "march through time". Continuity is achieved by recall and comparison in the mind of the observer.



## More sweeping changes to physics (1)



- What we refer to as "propagation of energy through 3-space" is in fact successive 3-positioning of a circulation of energy in 4-space, between the time-axis and a 3-space point and back, or vice versa
- This latter 4-circulation is what we refer to as "charge". Hence negative charge is energy circulation from T to  $L^3$ , and positive charge is energy circulation from  $L^3$  to T.
- Charge conservation is the complete 4-circulation. Due to vacuum polarization, any classical charge is a dipolarity, hence involves both energy flows.



## More sweeping changes to physics (2)

- \* Zero charge may be either absence of circulation, or the presence of the same magnitude of equal and opposite circulations. The first is stress-free, while the second produces a stress 4-potential, a change in energy density of the vacuum, and a curvature in spacetime.
- Propagation of EM energy through 3-space actually is the successive positioning of the 4-circulation — the propagation of a 4-circulation.
- \* This explains Silverman's comment that "we really do not know what charge is... ", by revealing at least a view of how charge can be modeled.



## More sweeping changes to physics (3)

- "Massless cause", "massless field", "massless potential", "curved spacetime", "exchange of virtual particles" are all slightly different aspects of the same precursor: massless cause (massless potentials and fields in space and changes of VPF in vacuum).
- \* All apply to the unobservable condition that exists prior to observation (observation occurs only after interaction of precursor with mass).
- ♦ Observation of the process whereby an ongoing massless cause is interacting with a previously observed "effect" to change it, is a  $\partial/\partial t$  operation induced upon that LLLT process to produce a new "frozen LLL snapshot" (observed effect).



## More sweeping changes to physics (4)



- The  $\partial/\partial t$  operation induced upon ongoing 4-interaction between a 4-cause and a previous 3-effect, yields the newly observed "form" of the observable, which provides the "change" to it (when compared in memory to previous effect observed).
- The best physics and engineering is to consider a set of such 4-causes — that will interact with or are interacting with a system — to be a nonmaterial, force-free precursor "engine". Directly engineering and using such "precursor engines" is a new and more fundamental approach. It is in fact that of FSB/KGB energetics.
- Precursor engineering (energetics) is a priori an engineering grand unified field theory approach.

## Peculiar note on Dirac "hole" thermodynamics

- In thermodynamics, several areas are already known and accepted to violate the second law. One of these is sharp gradients, about which "Not much is known either experimentally or theoretically".\*
- A very sharp gradient in energy density across a region of vacuum lifts electrons out of the Dirac Sea, leaving behind unfilled holes. Some of these holes can and do persist, not meeting electrons to "eat", refill and vanish.
- The hole (negative mass energy, negative energy EM fields and potentials) is not a positron (positive mass energy, positive energy EM fields and potentials).

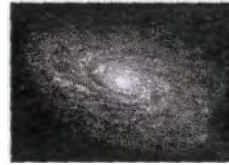
\* p. 459, Dilip Kondepudi and Ilya Prigogine, Modern Thermodynamics: From Heat Engines to Dissipative Structures. Wiley, Chichester, 1998, Reprinted with corrections Oct. 1999.

## Note on dark energy and dark matter problems (1)



- Dark energy is just negative EM energy. Here's how.
- Persisting or temporarily persisting Dirac sea holes are negative mass-energy "source charges".
- While existing, as a source charge a hole produces negative energy EM fields and potentials, spreading at light speed from the moment of hole formation by sudden removal of its filling electron by sharp energy gradients.
- When the long-ignored Heaviside curled energy flow component is also considered, the negative energy field energies involved are perhaps a trillion times greater than conventionally can be estimated via Poynting theory.
- Nonsignificant antigravitational effects are thus produced, by negative mass of holes and by negative energy fields.

## Note on dark energy and dark matter problems (2)



- A fraction of Dirac holes produced in violent gradient processes in the galaxy do persist. They are repelled away from the masses producing them, and stream toward the outside of the galaxy.
- As they exit the galaxy, they slow due to increasing repulsion from the matter of distant galaxies. Thus with passage of time there is a slowly increasing "pooling" of Dirac holes (dark matter) outside each galaxy.
- These increasing pools gravitationally repel the originating galactic matter, reducing that matter's escape due to velocity outward and centrifugal forces.
- The pools also gravitationally repel the matter of distant galaxies, so that a gradually increasing expansion acceleration occurs.



## Note on dark energy and dark matter problems (3)



- In the dark matter problem, the G-forces produced on the galactic arms to hold them together have been assumed to be positive gravity forces from hidden (dark) mass inside the galaxy and arms.
- Instead, it is proposed that those forces are in fact antigravity forces — from accumulations of Dirac holes (negative mass matter) just outside the galaxy — acting back on the galactic matter to repel it.
- As source charges, these persisting holes continue to radiate negative energy photons, producing and sustaining negative energy EM fields and potentials. Those contain the missing "dark energy" of the cosmos.
- Dark energy is just the negative energy fields and flows from dark (negative) matter as source charges.

## Dark (negative) energy and dark matter: Galaxy Integrity and expansion of the universe (1)



- A sudden impulsive and very strong energy gradient across a region of vacuum lifts electrons from the Dirac sea, flowing in one direction, and leaving behind unfilled negative energy Dirac holes flowing in the opposite direction. The flowing Dirac holes are currents of "dark matter" (matter having negative mass energy).
- The negative-energy hole is not a positive-energy positron, contrary to the prevailing interpretation. A positron has positive mass-energy and positive energy fields; a hole has negative mass-energy and negative energy fields. Equating the two has always been a logical non sequitur.
- As a source charge, the persisting hole emits negative energy photons, establishing and continually replenishing its associated negative energy EM fields and potentials, spreading at light speed.
- Violent sharp-gradient processes in galactic matter continually produce such outward light-velocity streams of negative energy fields followed by much slower streams of dark matter (holes).

## Dark (negative) energy and dark matter: Galaxy integrity and expansion of the universe (2)



- \* The outward-spreading dark (negative mass) matter streams are slightly repelled gravitationally by positive-energy masses in the galaxy. Thus they "navigate" slightly through a galaxy, avoiding matter except for those electrons forcefully meeting them and recombining without radiation.
- The dark matter tends to slow down outside the galaxy and exhibit dynamic cumulation (nonequilibrium steady state) outside, due to gravitational back-repulsion from the cumulations of negative energy outside other galaxies, etc.
- The cumulation of this dark matter around and outside each galaxy repels positive matter back into its own galaxy and also repels positive matter in all distant galaxies.
- \* Onward-racing negative energy fields with their Heaviside energy components contribute substantially to the effect.

## Dark (negative) energy and dark matter: Galaxy integrity and expansion of the universe (3)



- Considering the long-neglected giant Heaviside energy component of this negative EM energy flow and dark matter flow, its cumulation outside the galaxy far exceeds conventional calculations and leads to significant gravitational repulsion effects.
- From the collection/cumulation outside the galactic masses, the gravitational repulsion back into the galactic matter (e.g., back into a spiral galaxy's arms from the altered space surrounding each arm) holds the galactic matter together, preventing it from flying apart due to centrifugal forces overriding the normal positive gravitational attraction.
- This is largely the phenomenology erroneously labelled the "dark matter" effect. It is not an attraction from inside, but a repulsion from outside.

## Dark (negative) energy and dark matter: Galaxy integrity and expansion of the universe (4)



- Continuing accumulation of dark matter and negative energy concentrations outside each galaxy results in the increasing mutual repulsion of galaxies. At some point in the past, with the increasing Dirac hole cumulations the increasing mutual gravitational repulsion of the galaxies caught up with and exceeded their gravitational attraction, and it continues to slowly increase, further exceeding it.
- This reversed the deceleration of the expansion and generated and continues to generate the acceleration of the expanding universe, by gradually increasing the mutual departing intervelocities of the galaxies.
- Originally positive G attraction between galaxies was slowing universe expansion. Finally the cumulating antigravity caught up and surpassed it. So now the expansion of our universe is increasingly accelerated.

## Dark (negative) energy and dark matter: Galaxy integrity and expansion of the universe (5)



- \* Negative energy and dark matter can be investigated on the bench, using Bedini techniques\* and other techniques used by Sweet.\*\*
- \* Together with its Heaviside component, dark energy from the dark matter produces significant antigravity effects\*\* and many other effects.

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\* John C. Bedini and Thomas E. Bearden, "Radiant Potential Energy Charger", U.S. Provisional Patent Application ER 677978580 US, 2004. A formal patent application is in preparation.

\*\* Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," Proc. 26th Intersoc. Energy Conv. Enq. Conf. (IECEC '91). Boston, Massachusetts, 1991, p. 370-375. A highly successful antigravity experiment was performed, with the VTA unit losing 90% of its weight on the bench. Results are reported in the paper.

## Dark (negative) energy and dark matter: Producing anomalous Pioneer drag



- In a galaxy, violent gradient processes are continually occurring, continually producing dark matter and flows of negative energy slowly cumulating outside the galaxy. Dark matter accumulations outside produce more antigravity fields back into the galaxy, acting on galactic matter, than does the thinner concentration in the flow inside the galaxy. A similar effect surrounds the sun.
- A spacecraft moving away from our sun towards the outside of the galaxy, experiences a "net drag" force upon it, due to the excess G-repulsion from the outside dark matter accumulation. This accounts for the anomalous drag experienced by NASA's Pioneer 10 spacecraft and some others.



## Some aspects of Bedini's important negative energy Investigations (1)



- EM energy flow occurs in two main forms:
  - Divergent (positive) energy flow, where the energy is always trying to diverge out of its flow direction through space and escape back to the environment.
  - Convergent (negative) energy flow, where excess negative energy from the vacuum environment is trying to enter and increase the ongoing flow of negative energy.
- "Conductivity" means the ability of the conductor to "hold in" the positive energy on its flow path through space, and to "hold back" excess negative energy from the vacuum attempting to freely flow into and increase a negative flow of energy through space.
- "Impedance" is reduction of conductivity (ability to hold in or hold back the change in energy flow).

## Some aspects of Bedini's important negative energy investigations (2)



- \* Positive energy flow encountering an impedance will "lose some energy" diverged from the energy flow path. Less energy flow along the path leaves the impedance than entered it.
- Negative energy flow encountering an impedance will "gain some negative energy" converged in from the environment. More negative energy flow along the path leaves the impedance than entered it.
- Negative energy flow passing through a series of impedances can undergo tremendous gain, freely receiving excess negative energy from its environment.

## Some aspects of Bedini's important negative energy investigations (3)



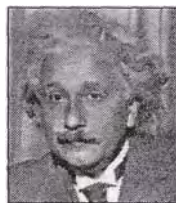
- \* Negative energy flow passing through a series of impedances freely receives excess negative energy from its environment via each "impedance".
- \* If loads are designed for negative energy, impedance of load provides an additional energy flow gain.
- \* Such negative energy flows are nonequilibrium systems, freely receiving excess negative energy from their environment.
- \* In theory, a flashlight battery producing a little negative energy could be used in a circuitry of special iterative series impedances to power a large city.
- \* The vast excess EM energy gathered would freely come from the vacuum environment.

## Conversion of negative EM energy to positive" EM energy



- Converting negative energy to positive energy is simple.
  - Charge a capacitor (or battery) with the negative energy, by connecting the battery "backwards" and pulsing it with negative energy pulses.
  - The battery charges rapidly, and also undergoes appreciable rejuvenation inside.
  - The battery charges with much less "operator-input" energy, because the environment freely inserts additional negative energy via the impedance of the battery.
  - Switch away the rapidly charged battery into another circuit, connecting it normally.
  - The battery discharges more "normal positive EM energy " into the loads and losses of that circuit than the operator furnished to do the switching and controlling.
- \* Scientific study and development of negative energy loads and systems can rapidly solve the energy crisis forever.

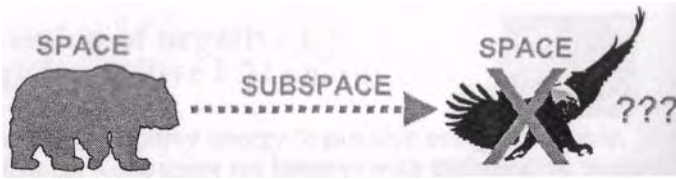
## Einstein's admonition



"... the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or, speaking more exactly, these conceptual tools of thought, as something obviously, immutably given; something having an objective value of truth which is hardly even, and in any case not seriously, to be doubted. ...in the interests of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them. "

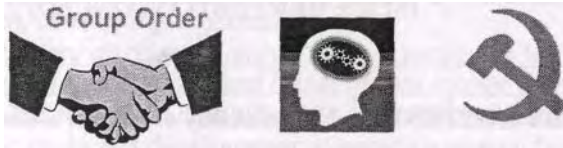
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PART I: APPENDIX; Vulnerability of Network-Centric Warfare

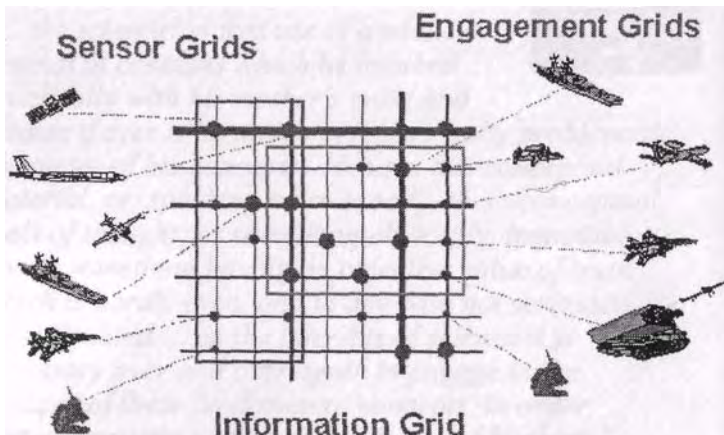


## Appendix 2: Example: Vulnerability of Network-Centric Warfare

Nullified by asymmetric energetics warfare

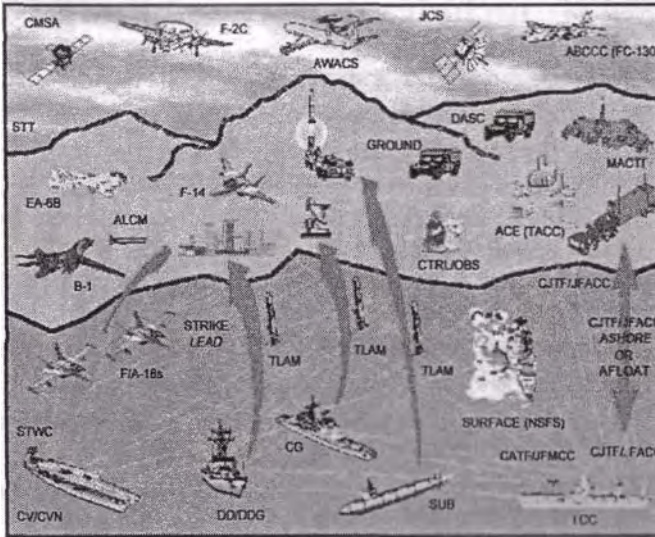


## Basic Idea in Network-Centric Warfare (NCW)





# Network-centric warfare (NCW) in part of the theater

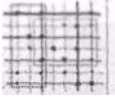


## Network-centric warfare



- A developing U.S. style of warfare based on force transformation and total network implementation on the battlefield, to unify and coordinate resources, forces, and actions.
- Particularly directed toward interoperability.
- Ensures all facets are "playing from same sheet of music".
- Shifts sources of power to information-based activities.
- Commanders effectively direct the various elements of the action, in real-time or near-real-time.
- Replaces the older notion of "orchestrating the battlefield", but goes much further by accenting interoperability, communications, and architecture.

\* E.g., see Max Boot, "The Struggle to Transform the Military," *Foreign Affairs*, Mar./Apr. 2005, p. 103-118. Also see briefing on <http://sunset.usc.edu/gaw/gaw2005/s8/slater.pdf>



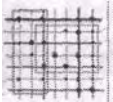
## Network-centric warfare includes many good things



- Continuous adaptive acquisition
- Robust operational prototyping
- Capability in the hands of people as possible, then issue the next item, then the next, constantly growing and changing
- Better than forecasting a need 15 to 25 years hence, freezing design then making it fit into the reality that emerges
- Work-in strategy threats and technology first, which yield concept development
- Balanced approach between creativity and implementation
- Train for the known but educate for the unknown
- Based on mission capabilities package — the sum total of that which is necessary to perform a task

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Largely taken from presentations by Admiral Arthur Cebrowski, Vice Admiral USN (Ret.), who is Director of Office of Force Transformation.



## Basic intent of NCW (1)

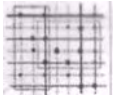
(Also see following slide)



- \* Time delays out of Observe, Orient, Decide, Act (OODA) loop.\*
- \* Immediacy of NCW information permits accomplishing OODA cycle on a smooth, nearly continuous basis at all levels of command, for "empowered self-synchronized" operations.
- \* With training, immediacy of near-total information available at all levels should further accelerate the semi-independent operations for "much greater speed of command."
- \* Permits decentralizing or flattening the command structure, taking the control function down to the lowest practicable level of command and shortening the response cycle.

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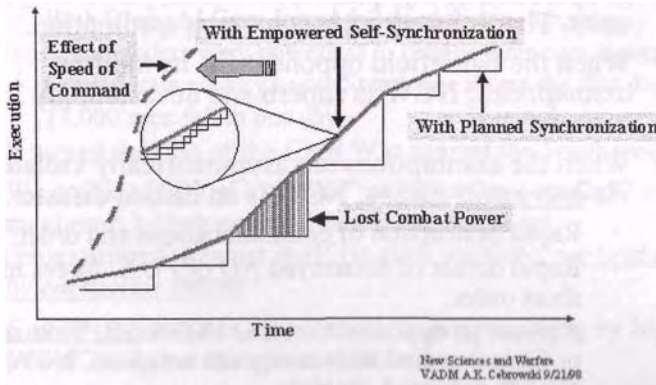
\* Col. John Boyd's famous loop, widely known in strategy circles.



## Basic intent of NCW (2)



### Self-Synchronization and the Speed of Command



### The asymmetric response

- "History knows many examples how the employment of a new weapon initially gave considerable success because the enemy, caught unawares and not knowing the combat capabilities of this weapon, was for some time incapable of effective counteraction."

(V. Yo. Savkin, The Basic Principles of Operational Art and Tactics, Moscow, 1972.)



- "Of particular importance is basic research aimed at discovering still unknown attributes of matter, phenomena, and the laws of nature, and developing new methods for their study and use to reinforce the state's defense capability. "

(Marshall Andrei Grechko)



## Network-centric warfare: Assumptions defeated



- NCW assumes GO — Group Order and coherence — in operation of equipment, networks, personnel, and units. That is an already-counteracted assumption.
- When the battlefield opponent fits its implicit assumptions, NCW is superb and devastatingly successful.
- When the assumptions are asymmetrically violated via energetics means, NCW is an instant disaster.
  - Rapid destruction of communications and order.
  - Rapid defeat of disarrayed NO GO U.S. forces in short order.
  - Against an opponent (such as FSB/KGB, Yakuza, or China) armed with energetics weapons, NCW is already rendered obsolete.



## Incident in World War I



- \* In WW I, in one incident commanders produced a rigid plan of attack, massive, and down to the finest details.
- ◆ Predicted superb success for such a superb plan.
- The attack was a total disaster. The Germans violated the programming assumptions and chewed up the operation.
- \* Lessons to be learned:
  - \* A strategy may work against an opponent fitting its implicit assumptions.
  - \* It fails miserably against a foe who can and does deviate asymmetrically from the implicit assumptions.
- Remark: Network-centric war worked decisively against a highly inferior Iraqi military, but proved nothing at all for asymmetric warfare in a modern energetics weapons arena.



# Programmed forces: Gettysburg



- At the battle of Gettysburg, forces reacted with programmed or stereotyped responses.
  - Both Blue and Gray forces followed their programs.
  - Commanders were powerless to change their own tactics.
  - Confederate cavalry under Stuart was absent the first day.
  - 17,000 men fell in one day.
- \* It turned the tide of the Civil War against the Southerners.
- We speak of "BlueGray War" or "BlueGray conflict" as maximum killing conflict, in a force that is set (programmed) against itself (in civil warfare), particularly by energetics means.
- Conversion enables the ultimate "reprogramming by higher power" and thus the ultimate BlueGray war.

## Part of a song\* about the Battle of pettysburg



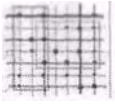
"Seventeen thousand fell today;  
The cannons roared and blew them all away.  
Blood ran red from Blue and Gray,  
And seventeen thousand fell today."

"Broken bodies lying all around,  
Mould'rin' in the sun and on the ground.  
Pigs and vultures came from far away —  
Lawd, they had a feast laid out today."



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\* "Seventeen Thousand Fell Today," T. E. Bearden, 1999. And yes, the pigs and vultures did feast outside Gettysburg on the great number of fallen bodies, both blue and gray.



## GO assumptions in NCW become NO-GO in reality



- ◆ Against energetics weapons, stability of C4 (command, control, communications, and computer systems) quickly vanishes.
  - Signals fail.
  - Facilities fail.
  - Equipment fails.
  - Personnel fail.
- \* Energetics warfare on all three fronts (energetic, bioenergetic, psychoenergetic) completely erases stability in all four areas.
- Initiates immediate and ultimate BlueGray internal conflict.
- Against a modern energetics warfare foe, the network-centric force without energetics nearly instantly succumbs.
- With psychoenergetics, GO becomes NO-GO in the targeted soldiers, regardless of how large the group. Group ordering instantly vanishes, and utter chaos is explosively induced.



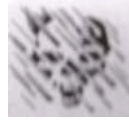
## For a world army of energetics robots



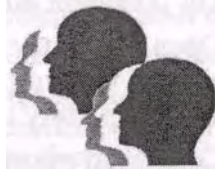
- \* After sunk costs on the front end, replica precursor robots cost about one cent each.
- \* A billion "carrier" robots — each with a thousand "secondary" weapons robots aboard — is about 1.001 trillion weapons costing a bit more than \$10 billion.
- \* This is sufficient to attack and destroy all modern nations, peoples, installations, weapons systems, etc. many times over. Nothing is immune or protected.
- Even \$1 billion (and time to reproduce all those robots and expense to get control of them) is sufficient to allow destroying all one's enemies with their weapons systems, populations, facilities, and installations.



# Some example scenarios



- New National Emergency scenario.
- » Chinese scenario.
- Terrorist scenario.
- Gradual defeat scenario.
- Dissolution of society scenario.
- Sudden defeat scenario.
- Massive sleeper conversion scenario.



## Scenario 1: Substantial new national emergency arises



- U.S. President is whisked on board Air Force One, complete with entourage.
- Key congressmen are whisked to secret underground facility.
- Alert forces react, patrolling skies, border, oceans, cities, etc.
- Command and control centers on full alert and in emergency operations.
- ICBM, bomber, and nuclear subs ready and/or deployed.





## Kill of President and Vice President:

Use of ultimate "throwaway" assassins (1)



- \* Converted staff and security personnel on board the Presidential aircraft have personas triggered by implanted, waiting robots.
- \* BlueGray conflict erupts on AF-1. Converts kill president and his party.
- \* Open gun battle between security people. Converts kill others, who are completely outnumbered.
- Converted pilots calmly fly AF-1 into the side of a mountain, turning it into a fireball and dying with it.

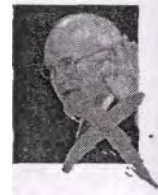


## Kill of President and Vice President:

Use of ultimate "throwaway" assassins (2)

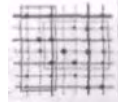


- At same time, other conversions are triggered in separate facilities of the Vice President. Converts destroy facilities and kill the VP.
- Simultaneously, triggered conversions in congressional facilities occur. Converts methodically kill all personnel and congressmen, then destroy facility with themselves in it.
- Facilities and personnel for Joint Chiefs, Supreme Court, State Department, etc. are destroyed in similar fashion.
- \* Very quickly the U.S. is devoid of most of the leaders of its government. Process can continue further downward.





## Sleeper conversions triggered and key personnel destroyed



- Key personnel converted; energetics robots begin destroying equipments, C4, weapons, patrol vehicles, etc.
- BlueGray warfare erupts throughout security forces as equipment fails or is destroyed.
- Converted and nonconverted personnel in security forces "eat themselves" by killing each other off.
- Command and control centers "eat themselves" and fail.
- Entire strategic force has bombers, weapons, nuclear subs, carriers, etc. destroyed by robots. Converted personnel attack and "eat each other" and destroy own friendly facilities by BlueGray conflict.
- Entire U.S. is utterly destroyed, as robots finish mop-up.

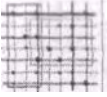


## Additional actions



- Massive robot attacks and conversions unleashed on cities, civilian populace, facilities such as power stations and refineries, ports, etc.
- Civilian populace in full BlueGray war because of extensive conversions. Populace consumes itself.
- Power stations, refineries, port facilities, bridges, major buildings and facilities destroyed.
- America becomes a smoking ruins.
- Anew, "Pigs and vultures came from far away, Lawd, they had a feast laid out today. "





## End result: GO to NO-GO



- System stability and survival assumptions of network-centric warfare are totally negated.
- Without energetics defense, network-centric warfare forces can be swiftly and easily destroyed in the era of asymmetric energetics weapons.
- Nuclear weapons, nuclear propulsion systems, and nuclear power systems are easily and quickly duded by QP weapons.
- Strategic capability of the United States is very rapidly destroyed.



## Scenario 2: Chinese scenario (1)

- China prepares both ways: to accommodate, and to strike and destroy.
- FSB/KGB inserts mass "sleeper" personas in all key Chinese officials.
- Cooperation (or conversions) in Chinese at various levels, and in targeted nation's (U.S.'s) port and security personnel.
- Chinese insert numerous shipping containers filled with nuclear weapons and other WMD, into United States. Converts in U.S. ports and in officialdom assist overtly.
- 50 to 100 Chinese nukes inserted in U.S. cities.





## Scenario 2: Chinese scenario (2)

- Inserted nukes are detonated, in the dirt, destroying major U.S. cities; 150 million U.S. casualties.
- BlueGray war erupts; Yakuza finishes off U.S.
- FSB/KGB then promptly retriggers massive sleeper Chinese conversions.
- Violent BlueGray war erupts in China and China destroys itself very quickly.
- FSB/KGB emerges winner.
- If deemed necessary, sleeper conversions in Yakuza destroy Yakuza also.



## Scenario 3: Terrorist scenario



- \* Organized terrorist leaders undergo conversions, as do selected ancillary U.S. personnel etc.
- ♦ Converts in several nations provide nuclear weapons to terrorists (such as Al Qaeda).
- Containers filled with nuclear weapons openly inserted in U.S.; U.S. converts assist directly.
- ♦ 50 to 100 nukes inserted into U.S. cities, also other WMD.
- Terrorist converts detonate nukes, destroying cities and producing 150 million casualties.
- \* U.S. BlueGray war erupts due to internal conversions. Yakuza finishes off the U.S.
- FSB/KGB retriggers terrorist converts.
- BlueGray war consumes terrorist organizations, Arab nations, etc. which eat themselves.





## Hypothetical conversation



- \* Q: "How many dedicated hard-core terrorists would you like inserted in the United States? "
- \* A: "One million. "
- \* Response: "Piece of cake. From a distance we will put sleeper conversion personas in a million carefully chosen Americans (young, strong, active, intelligent, knowledgeable) and suddenly switch them. "
- \* Q: "Will they be dedicated, and will they be willing martyrs? "
- \* A: "Far better than any you presently have available for insertion. They will also be unrecognizable prior to the conversion switching. "



## Scenario 4: Gradual defeat scenario (1)



- \* Conversions in selected elements of U.S. society, with sophisticated switchable personas.
- \* Polarizations — disagreements, oppositions, fanaticism — intensify slowly in polarized society.
- \* Courts, law bodies, law enforcement, government levels gradually split into multiple warring factions.
- \* Entropy of society grows steadily and without bounds, spurred by slow increase in converts who keep intensifying polarizations. There is chaos in the streets.
- \* Entropy and conflict increase to where paralysis begins.



## Scenario 4: Gradual defeat scenario (2)



- Economy collapses, culture collapses.
- Will, emotional intent, and ability to get things done wither away and die. U.S. society grinds to a halt, consumes itself.
- U.S. is "defeated" mentally and emotionally, fading into entropy (anarchy) with direct self-killing and intense BlueGray war. GO becomes NO-GO.
- Yakuza scalar interferometers augment the chaos and destruction, assisting in causing catastrophic U.S. economic collapse.
- Then Yakuza methodically completes total destruction of the U.S. with its scalar interferometers.



## Scenario 5: Dissolution of society (1)



- Switchable persona conversions in selected leaders of U.S. activist groups, influential groups, media groups.
- Some gradually switched into conversion; deepen disinformation and activist programs.
- News media, government agencies, activists perverted.
- U.S. groups set against other U.S. groups, with slowly increasing fanaticism.
- BlueGray war between groups starts and increases steadily in intensity. Society begins to consume itself.



## Scenario 5: Dissolution of society (2)



- Purposeful and concerted peaceful actions mostly cease; nation and culture come unglued as senseless violence begins and escalates.
- National culture unravels, polarized opposing groups are "eating each other". Dissolution of the nation, of the culture, and of "normal" GO efforts such as by populace, military forces, police forces.
- Electrical power system destroyed; economy violently collapses.
- Robots and Yakuza "finish off" remainder of populace and society.



## Scenario 6: Sudden defeat



- Massive converts triggered by "switching-in" pre-installed "sleepers" persona conversions.
- Extensive BlueGray warfare erupts in fierce intensity.
  - Precursor robots simultaneously attack massively, destroy installations, cities, facilities, power systems, weapons systems, command and control systems, etc.
  - Terrorists simultaneously unleash anthrax, smallpox, nukes, scalar interferometry.
- At same time, converted U.S. armed forces groups begin attacking American cities and each other with U.S. nukes, biowar, missiles, and field forces. U.S. military neutralized.
- Total BlueGray warfare without rhyme or reason rapidly consumes America, collapsing the populace and the entire nation. Then Yakuza methodically finishes off remnants.
- Can occur in two days or less; even in two hours.



## Scenario 7: Massive sleeper conversion



- Pre-insert switchable sleeper personas in millions; all leaders.
  - Congress, president, cabinet, high officials, defense leaders.
  - Particularly saturate leadership of WMD retaliation and deterrence, military, police.
  - Particularly include Israel.
- Evoke "sudden destruction" scenario, just after switching-in all sleeper conversions.
- Entire society quickly nullified as all sanity and ordering lost. President, Congress, pentagon hierarchy, all security hierarchies commit suicide or destroy each other and populace.
- Society destroys itself at same time that Yakuza, terrorists, and others are attacking and destroying any remaining vestiges.



## Important conclusion



- \* Present scenario chosen seems to be a combination of the slow dissolution scenario and the massive sleeper scenario.
- \* Must have the massive sleeper scenario to nullify Israel, else FSB/KGB and Russia destroyed also.
- \* Assuming the combination:
  - The slow scenario for us lasts two years, peaking to destruction of U.S. centralized electric power system, refineries, etc. and with catastrophic economic collapse.
  - Just prior to that climax, sudden dramatic demise of Israel occurs via evoking the massive sleeper scenario upon that state.
  - Sleeper conversion personas already inserted in both the U.S. and Israel, perhaps UK and others, in massive numbers.
- \* The Yakuza will play the major protege role in the internal overt destructive actions against the U.S.
- \* U.S. is unprepared to detect or defend against inserted sleeper conversion personas, triggerable at any time.





# Remarks



- Hundreds of other scenarios exist and can be initiated. Limited only by imagination and ingenuity of planners and by availability of energetics weapons and capabilities.
- All concepts that "military organizations and systems keep functioning and viable as totally reliable forces" are in error from the outset by conversions, including U.S. network-centric warfare.
- Presently planned Army of the Future is neutralized and defeated by energetics warfare. It can be neutralized in the mind, body, equipment, signals, organizations, and functions modes simultaneously.
- One or more of these or similar scenarios are now in place and already slowly progressing in the operations phase of asymmetric war against us.
- By early 2007, operations phase is expected to destroy us.



## Final urgent commentary (1)

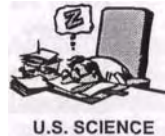


- Russian energetics has secretly applied Einstein's admonition for more than a half century.
- Long ago worked the major "kinks" out of EM, GR, quantum theory, etc. and achieved a grand unified field theory (GUFT) that has been highly weaponized.
- Our immediate problem is to sufficiently catch up at the most desperate speed possible, particularly in psychoenergetics. Barrier is U.S. scientific community.
- Presently we cannot defend against the eerie new destruction threats rapidly converging upon us, at the same time different but equally destructive threats are converging or have reached total destruction capability.



## Final urgent commentary (2)

- \* The greatest problems are our severe lags in our
  - Century of delay in correcting the terribly flawed CEM/EE model.
  - \* 60 year delay in psychoenergetics, massive sleeper conversion, and the eerie nonmaterial robots.
- \* Unless U.S. science is sharply awakened from its century-long slumber, we are essentially already defeated and finished.



## Final urgent commentary (3)

- \* We presently have one slim chance.
- \* Given that Israel does somehow have defenses in psychoenergetics, then Israel may be able to save the U.S. again, as it did in the 1970s, in 1986, twice in 1997, and again at the end of 1999 and in the first part of 2001.
- \* If, on the other hand, Israel itself will be destroyed this time, then nothing we have will save us.
- \* In that case, the U.S. scientific community will have destroyed us.

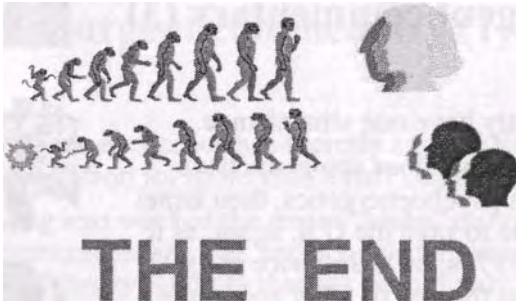




## Final urgent commentary (4)



- \* The darkest days in the history of our republic lie immediately ahead of us.
- Hopefully present, rapid Israeli developments (and others) may reduce or nullify the conversion threat.
- If we are to survive, we shall need the most strenuous and rapid effort in our history, now.
- In times of grave peril, Americans have always rallied to national liberty and survival. We must do so again.
- \* God bless and keep America! We pray for its survival.



## References

i. T. E. Bearden, Fer-de-Lance. Cheniere Press, Santa Barbara, 2nd edition, 2003, gives a reasonably good overview of the Russian/Soviet/KGB/FSB development and use of what is called energetics weapons. These are superweapons using a new approach for using force-free fields in space prior to their interaction with matter to form force fields in matter. We have also called this new approach "precursor engineering", in order to tie it to conventional Western physics as an extension thereof, and hopefully to convince Western scientific leaders to correct the seriously flawed and horribly archaic old classical EM and electrical engineering models taught today in Western universities.

The standard CEM/EE model is so fouled with known major errors that it has become a reflection on the lack of scientific ethics at the highest levels of our scientific community. Our scientific leaders continue to advocate and promulgate such erroneous models, and are directly contributing to the imminent destruction of our nation and people. They continue to ignore the serious flaws of the models as pointed out by imminent scientists such as Feynman, Wheeler, Bunge, Lindsay, Margenau and many others. This cannot be simply shrugged aside and ignored with impunity, if we wish to survive.

Because of its long inaction on this problem, the U.S. scientific community is directly responsible for the presently escalating energy crisis, and it is also partially responsible for the high probability of success of the present 3-year terrorist strategic program leading to our total destruction. It is further responsible for our having no effective "amplified EM anti-engines" treatment for mass casualties, so that millions of stricken Americans will die who did not have to, had the scientific community changed its ostrich position with its head firmly in the sand.

Any high level scientific organization or group involved in electromagnetics that is not discussing and working on the source charge problem — how a charge continuously pours out observable photons in all directions, without any observable energy input — is a scientific organization or group that is participating actively though unwittingly in the coming destruction of our nation and our people.

By the same token, any high level intelligence agency not addressing this seemingly innocuous "archaic CEM/EE model" problem will have no knowledge of the KGB energetics weapons and capabilities. Any such intelligence group is simply failing to perform its designated scientific intelligence mission. Sadly, almost all our present high level intelligence agencies have hardly even heard of the problem; most don't even care that it exists. They certainly have not considered such "foundations issues" to involve winning or losing the asymmetric terrorist war against us. Consequently, that war now enfolds and coordinates the international terrorists also, including the hidden key role being played by the Yakuza.

ii. T. E. Bearden, "Precursor Engineering: Directly Altering Physical Reality," *Explore*, 13(2), 2004, p. 50-60 somewhat crudely describes the basis for energetics, which the Soviets developed as a science of secret superweapons long since developed, deployed, and clandestinely being utilized against us.

iii. Sec T. E. Bearden, "Soviet Weather Engineering over North America," 1-hour videotape, 1985 for documentation of some of the early Soviet weather engineering operations, with pictures of the specific cloud signatures etc. Or just check the news regarding the recent 2004 Caribbean hurricanes being ginned up one after the other, strongly controlled, and strongly pounding the Southern and Eastern seaboard.

iv. See (a) M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," *Journal of New Energy*. 4(3), Special Issue, Winter 1999, p. 76-78. This paper gives a succinct mathematical development of scalar interferometry, using a higher electrodynamics with  $O(3)$  group symmetry. The original two papers by Whittaker are (b) E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Math. Ann.*, Vol. 57, 1903, p. 333-355, and (c) — "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc. Series 2*. Vol. 1, 1904, p. 367-372. The two papers can be downloaded in PDF form from [www.cheniery.org](http://www.cheniery.org). The 1904 paper initiated that area of electrodynamics known as superpotential theory.

v. T. E. Bearden, *Fer-de-Lance*. 2nd Edition, Cheniere Press, 2003, with update, gives a rough time table for the development of these energetics weapons, the main types developed, and many actual test incidents for the weapons.

vi. T. E. Bearden, *Gravitobiology*, Second Edition, Cheniere Press, 2003 covers some of the biological aspects.

vii. T. E. Bearden and K. D. Moore, *Conversion: A Major Strategic Threat*. 2003, a 300+ page color slide briefing, covered the bizarre but highly successful mind-engineering (psychoenergetics) aspects. (It was an earlier version of the second part of this book). It was produced and delivered pro bono to a three-letter U.S. government agency. No open release of this document has been made by the authors. The document gives the basis for actual production of a living and functioning human mind in the laboratory, the insertion of that mind in another human being, and alternation (conversion) between the two minds to shift the behavior of the individual back and forth at will. Information on that subject is in the present paper.

What is demonstrated in a multiple personality case can be directly produced on the laboratory bench and in any human target anywhere on the planet.

An operational fraction of the mind can be used in conversion techniques also, without total mind switching but only with switching of that fraction involving a certain area or class of behavior.

Thus selected leaders in a societal polarization area, on both extreme ends, can be selectively and repeatedly "temporarily converted" to more extreme and dramatically different behavior and leadership, to push the polarization to greater intensity. That capability will be increasingly exercised over the next two years. The general background of the KGB development of this ability, actual dramatic human test incidents, and the science on which it is based are given in the present book. The application and role of conversion in the present 3-year coordinated terrorist program to destroy the United States is also included — briefly in Part I, and more extensively in Part II.

viii. On April 28, 1997 — even as Defense Secretary William Cohen was publicly confirming at a conference in Georgia that "terrorist" electromagnetic superweapons were being used to engineer the weather and climate, trigger volcanoes into eruption, and

generate earthquakes — the moments were ticking away for a sudden massive Russian/KGB superweapon attack on May 1 that would have utterly destroyed the U.S. in two hours or less. Eerily, neither Dr. Cohen nor our U.S. intelligence agencies knew what was actually transpiring and coming down upon us, even as the Secretary spoke. Five days before the scheduled attack, we had sent a desperate fax to the prime minister of the supporting nation, pointing out a critical change that had to be made in their most powerful superweapon's command and control system. The change was quickly made and the Soviets were so notified. We waited in agony as the clock ticked until, with two days remaining before May 1 (the scheduled attack date) — and while Secretary of Defense Cohen was speaking in Georgia — that giant armada started standing down, and Armageddon was again avoided by a hair's breadth.

ix. Stanislav Lunev (with Ira Winkler), *Through the Eyes of the Enemy*. Regnery, Washington, 1998 gives a good accounting of the powerful part played by the Russian Mafia in the aftermath of the Soviet Union's economic collapse. Lunev is the highest ranking GRU defector. He is a former Colonel in the GRU, the military counterpart of the KGB. On p. 22-33, he summarizes the Spetznaz capabilities. On p. 22-27, he summarizes Spetznaz use of nuclear weapons already on American soil and in our cities. On p. 26, he gives some of the ways in which the Soviets easily brought nuclear weapons into the U.S. On p. 30 he confirms Russian seismic weapons. Use of EMP weapons is on p. 30-31. Use of very, very low frequency weapons to destroy the human brain, put people into a zombie-like state, and aid in brainwashing is confirmed on p. 31. Lunev was of course not allowed to detail the most highly relevant energetics weapons information. The book as published had to be cleared and approved by the U.S. Central Intelligence Agency, which would obviously not allow such details to be included.

x. For some details on the Yakuza, see (a) Brian Bremner, "The Samurai Meets the Godfather." *Business Week*. Jan. 29, 1996. On p. 47, Bremner gives a quick, half-page overview of the Yakuza in Japan. (b) — "How the Mob burned the Banks: The Yakuza is at the center of the \$350 billion bad-loan scandal." *Business Week*. Jan. 29, 1996, p. 42-43, 46-47. This article summarizes the Yakuza involvement in, and cause of, the huge bad-loan banking scandal that occurred in Japan. This rip-off of the Japanese taxpayer enriched the Yakuza. See also (c) Michael Hirsh and Hideko Takayama, "Big Bang or Bust?" *Newsweek*. Sept. 1, 1997, p. 44-45. The Yakuza rip-off of the Japanese banking system may have been for as much as \$600 billion. Our comment is that any high U.S. Japanese official seriously protesting the Yakuza involvement at the time, was in grave danger of being killed. Several were in fact assassinated by the Yakuza.

xi. Many details on the Aum Shinrikyo are given in *Global Proliferation of Weapons of Mass Destruction*. Part I. Senate Hearing 104-422. Hearings Before the Permanent Subcommittee on Investigations of the Committee on Governmental Affairs. U.S. Senate, Oct. 31 and Nov. 1, 1995. Sadly, that Subcommittee seems to have known nothing at all about the Soviet superweapons acquired by the Yakuza/Aum Shinrikyo, although that information certainly is known to certain U.S. Government agencies.

xii. We acknowledge the significant contributions of Australian geophysicist Harry Mason, who furnished this vital information and verified its authenticity.

xiii. See (a) Michael Hirsh and Hideko Takayama, "Big Bang or Bust?" *Newsweek*. Sept. 1, 1997, p. 44-45; (b) Brian Bremner, "How the Mob burned the Banks: The Yakuza

is at the center of the \$350 billion bad-loan scandal." *Business Week*. Jan, 29. 1996, p. 42-43, 46-47.

xiv. See (a) M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," *Journal of New Energy*. 4(3), Special Issue, Winter 1999, p. 76-78. This paper gives a succinct mathematical development of scalar interferometry, using a higher group symmetry electrodynamics. The original Whittaker papers giving the basis for scalar interferometry are listed in references {xxi, xxii} below.

xv. Graham H. Turbiville, Jr., *Weapons Proliferation and Organized Crime: The Russian Military and Security Force Dimension*. U.S. Air Force Academy, Institute for National Security Studies, Colorado Springs, CO, June 1996.

xvi. For conventional consideration of hurricane increases, see (a) Lennart Bengtsson, "Hurricane Threats," *Science*. Vol. 293, 20 July 2001 p. 440-441; (b) Stanley B. Goldenberg et al., "The Recent Increase in Atlantic Hurricane Activity: Causes and Implications," *Science*. Vol. 293, 20 July 2001 p. 474-479. For a young weatherman who recognizes the direct use of weather engineering when he sees it, and is steadily reporting and exposing it, see meteorologist Scott Stevens' website <http://www.weatherwars.info>.

xvii. A notable exception is meteorologist and TV weatherman Scott Stevens, who observes and publishes much information on the weather war going on in the skies over the United States, on his website <http://www.weatherwars.info/>.

xviii. Particularly professional and hard-hitting coverage of the desperate energy situation is given by Matthew Simmons, head of Simmons & Company International. Highly professional presentations of the real situation in energy worldwide, is available in PDF format from the Simmons website <http://www.simmonsco-intl.com/>.

xix. T. E. Bearden, "Precursor Engineering: Directly Altering Physical Reality," *Explore*. 13(2), 2004, p. 50-60. Briefly, there are no forces or force fields in mass-free space, but only in mass systems. For electromagnetic systems, what we call "force" is the ongoing interaction of the force-free EM field in space, with charged mass  $q$ . That ongoing interaction is identically force. Force is therefore the ongoing effect of a more fundamental ongoing causative interaction of curved space with mass.

The field in space is simply an energy pattern, existing as a change to the virtual particle flux of the vacuum (particle physics view) and a curvature of spacetime (general relativity view). It is also a set of Whittaker energy flows, where by "change in energy" we mean "change in the VPF of the vacuum," and "change in the curvature of spacetime". Accordingly, we may formally define energy as spacetime curvature, and also as change in the VPF of the vacuum.

The precursor EM field is simply the EM field as it exists in mass-free space, prior to the field's interaction with matter to form forces and a force field.

The precursor EM field — even a "static" field — is also a set of ongoing Whittaker energy flows that continue so long as the field is merely present. So unlimited energy flow itself is free for one's taking and using, from any precursor (force-free) field or potential that is established in space. A region of spacetime curvature may be modeled as comprised of a harmonic series of bidirectional longitudinal EM waves — real EM energy flows from

the source charges producing the associated EM fields and potentials (EM curvatures of spacetime). One merely has to intercept and collect the freely flowing EM energy from any static field or potential, and prevent any of the collected energy being used in one's circuit to destroy the source of potential or the source of field. This is easiest accomplished by potentializing the circuit with its charges  $q$  pinned, so  $dq/dt = 0$ . Then switch away the completely undepleted external source of potential, recomplete the circuit (as with a diode and resistor in series), unpin the electrons and allow current to flow. The new "freely potentialized" circuit will then freely dissipate power in that circuit's loads and losses, until all the initial free potential energy is dissipated. The free energy flow phenomenon and insulating free potential energy change in the absence of current, actually is the physical mechanism that generates the gauge freedom axiom, whereby the potential — and thus the potential energy — of any EM system can be freely changed at will, and without doing work.

Because precursor fields are copious free flows of energy continually extracted from the vacuum via the source charges, one can directly engineer very powerful changes in the energy of the causative force-free precursor field, requiring that one furnish only a bit of work for the switching and structuring and controlling of the freely available energy flows comprising that change. Thus one can almost freely produce a very large precursor energy field set prior to forces and "field work" being involved at all. By subsequently interacting this very large but nearly free precursor energy field set with charged mass in a physical system, extraordinarily large forces and physical effects (work) are then almost freely produced in the mass system. This strongly calls attention to the fact that there are no "conservation of work" laws in physics! There are only conservation of energy laws. Work is simply changing the form of energy; if the "energy changed in form" is received for free, then so can the resulting work be "for free". In the present scientific view, this is negentropic engineering — and it is perfectly permissible by the laws of nature and of physics.

One must also be careful to distinguish between "internal system work" and external work by the system on something else (an external load). To do internal work, a single joule of EM energy can be "used" (converted in form) again and again, to produce multiple joules of work all internally on the system. Work rigorously is the change of form of energy. Given  $X$  joules of energy to begin with, one can get  $X$  joules of work in one change of form of the energy — and if that work was internal and none of the energy in the new form is lost from the system, one still has all the energy left within the system, just in a different form from what it was in the beginning. If the system still collects this energy in its new form and does not allow its dissipation, it can again be changed in form (e.g., back to the original form) to produce  $X$  more joules of work internally to the system. But then the energy is still present, and now in the original form again! Closed looping that "circulation" of changing-form-energy, while preventing any losses of the circulation flow, is a problem for the dogmatic advocate castigating perpetual motion (which is actually Newton's first law of motion). The "perpetual motion while doing continuous work with no additional energy input is impossible" statement contains a false assumption: that each time energy changes form and thereby does work, the work is external work by the system on an external load, and the control of the energy in the new form is just "lost" — i.e., the energy in the new form is just dissipated on out of the system, never again to return. One does not have "dissipation of energy" as work unless the energy in its new form after the work is lost from the system. If it is not dissipated out of the system, control of it by the system has not been lost. It can again be used to perform additional internal work in the

system, though not external work outside the system if it is to continue doing internal work. So it will do that internal system work indefinitely. Note that this form of "perpetual motion and perpetual internal work with no additional energy input" is quite compatible with the conservation of energy law, once one recognizes the difference between internal work and external work, and understands that work is rigorously the change of form of energy, nothing else. It is still quite true that, in the engineering sense where one wishes to do external work on an external load outside the system, then the dissipated energy performing work in the external load is not recovered (usually), and the usual simple thermodynamics emerges.

By precursor engineering (i.e., Russian energetics), one can pay a little bit to almost freely engineer very large energy patterns in mass-free spacetime, prior to their subsequent interactions with matter. Then by simply interacting these "almost freely developed pure energy structures and dynamics" with charged matter, very great work (force effects, or force engines acting in that charged matter) can be almost freely produced, including at great distances. By continuing to propagate a hoary old false EM model that still assumes force fields in space (and thereby still assumes the old material ether), our own scientific leaders are blindly and very determinedly withholding the U.S. scientific community from knowledge and use of precursor engineering (energetics) and therefore from knowledge and use of negative entropy engineering. Since the KGB weapon scientists are using precursor engineering (energetics) in superweapons of great power, the ignorance of our scientific leaders and their refusal to change the terribly flawed CEM/EE model are leading the United States directly into our catastrophic destruction.

xx. Nikola Tesla, "Pioneer Radio Engineer Gives Views on Power," New York Herald Tribune. Sep. 11, 1932.

xxi. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355. Downloadable from [www.cheniere.org](http://www.cheniere.org).

xxii. E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc. Series 2*, Vol. 1, 1904, p. 367-372. Downloadable from [www.cheniere.org](http://www.cheniere.org).

xxiii. J. D. Jackson, *Classical Electrodynamics*, 2nd Edn., Wiley, 1975, p. 249.

xxiv. Elsewhere we have formally corrected the present Second Law of thermodynamics, which is an oxymoron implicitly assuming its contradiction has first occurred (to move the system away from equilibrium, thus lowering its entropy — a negative entropy operation). The old Second Law deliberately does not account its assumed preceding negative entropy operation. It then accounts only for the entropic decay of the out-of-equilibrium system back to equilibrium — the state of maximum entropy. That is why it prescribes only the production of increasing positive entropy.

Written presently as  $(0 \leq \Delta S < +\infty)$ , the Second Law assumes — but deliberately does not account for— its own contradiction by a prior negative entropy operation  $(-\infty < \Delta S \leq 0)$ , and thus formally is a logical oxymoron and always has been. The old Second Law  $(0 \leq \Delta S < +\infty)$  must be replaced by the new law  $(-\infty < \Delta S < +\infty)$ , which now also accounts for the previously unaccounted but implicitly assumed prior negative entropy precursor operation.

Very often, this overall new Second Law is applied in systems in two serial phases: first



an excitation (potentialization, or asymmetric regauging) phase occurs in which the system departs from equilibrium via the new half-law ( $-\infty < \Delta S \leq 0$ ). The potentialization phase is then followed by the excited system's decay back to equilibrium by the old half-law ( $0 \leq \Delta S < +\infty$ ). For such separate potentialization and decay phases, the second law can be expressed as the equation ( $-\infty < \Delta S < +\infty$ ) = ( $-\infty < \Delta S \leq 0$ ) + ( $0 \leq \Delta S < +\infty$ ). In that form, the old second law is the rightmost term and is easily seen to be only a "half-law". It merely accounts the decay of a previously excited system, back to equilibrium. The new overall Second Law is (i) consistent with experiment, (ii) includes the known thermodynamic contradictions to the old Second Law (several are given in Kondepudi and Prigogine, *Modern Thermodynamics*, Wiley, 1999, p. 459), (iii) includes transient statistical fluctuations in an equilibrium system including their initial negative entropy halves, (iv) removes the logical error in the old law's statement, and (v) now includes negative entropy engineering (precursor engineering, or what the Soviet KGB weapon scientists dubbed "energetics"). Since every charge and dipole in the universe explicitly and freely pours out real observable EM energy at light speed, without any observable energy input (which means with only virtual-state energy input), then every charge already demonstrates continuous production of negative entropy and experimentally falsifies the present old Second Law. It does, however, comply with the new and corrected Second Law, which is clearly and experimentally established once one studies the "source charge problem" together with its polarization of the vacuum and its consequent "broken symmetry of opposite charges" solution. Every charge therefore happily and continuously produces negative entropy, of the sort shown theoretically possible by D. J. Evans and Lamberto Rondoni, "Comments on the Entropy of Nonequilibrium Steady States," *J. Stat. Phys.*, 109(3-4), Nov. 2002, p. 895-920. Evans and Rondoni despaired of finding any real system exhibiting such continuous production of negative entropy, but did allow that, for deterministic systems, the "problem remains." After solving the long-vexing source charge problem, we then nominated every charge and dipole (and dipolarity) in the universe as examples of real physical systems continuously producing negative entropy as predicted by Evans and Rondoni.

xxv. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures on Physics*. Addison-Wesley, Reading, MA, Vol. 1, 1964, p. 12-2.

xxvi. *Ibid.* Vol. 1, 1964, p. 2-4.

xxvii. See T. E. Bearden, Fact Paper, "Perpetual Motion vs. 'Working Machines Creating Energy from Nothing': With a Discussion of Perpetual Extraction and Emission of Real EM Energy from the Vacuum," available on website [www.cheniery.org](http://www.cheniery.org). The paper also gives a full explanation of the exact reordering and coherent integration mechanism used by every source charge to produce continuous negative entropy.

xxviii. T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*. Cheniere Press, Santa Barbara, CA, 2002.

xxix. P. Drude, *Ann. Physik*. Vol. 1, p. 566; Vol. J, 1900, p. 370, 869.

xxx. See Raymond A. Serway, *Physics for Scientists and Engineers, with Modern Physics*. Third Edition, updated version, Saunders College Publishing, Philadelphia, 1992, p. 742-745 for a pertinent discussion of drift velocity.

xxxi. Scrway, *ibid.* p. 744 shows a typical calculation of a drift velocity of  $2.46 \times 10 \exp(-4) \text{ m/s}$ .

xxxii. See E. T. Whittaker, *A History of the Theories of Aether and Electricity*. London, 1958 for a treatise on ether theories, their type, their development, etc.

xxxiii. (a) A. A. Michelson and E. W. Morley, "Influence of motion of the medium on the velocity of light." *American Journal of Science*. Vol. 31, Series 3, 1886, p. 377-386; (b) — "The relative motion of the earth and the luminiferous aether," *American Journal of Science*. 4(3), 1887, p. 333; (c) — "On the relative motion of the earth and the luminiferous aether," *Phil. Mag.* 24(4), 1887, p. 449.

xxxiv. J. D. Jackson, *Classical Electrodynamics*, 2nd Edn., John Wiley & Sons, New York, 1975, p. 249.

xxxv. Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism. Weapons of Mass Destruction, and U.S. Strategy. University of Georgia, Athens, Apr. 28, 1997.

xxxvi. In any large and powerful organization, essentially the leader does not personally implement anything, but makes decisions and issues orders. The circle immediately surrounding him (first level down in the organization) is his advisors and staff; they also do not personally implement, but relay the orders to appropriate sections of the organization. The second level down is where the large parts (directorates, Sections, etc.) of the organization exist. A manager at that second level down is busy with administration matters, so he personally does not implement. But at the third level down, where the suborganization is now smaller, that manager is usually the implementer. To implement is to perform actions laterally, in and outside the organization, so the third level manager's world is largely a lateral world, with extensive functions, contacts, agreements, etc. with outside groups and agencies. Now call those third level managers and organizations the "implementation entourage" or just the "entourage" for short. This is where all the lateral action happens.

Now apply the bell-shaped normal distribution curve to the entourage managers. At least 9% are lacking in matters such as ethics etc. Shrink that 9% down to 1%, and now one has managers who are in fact very evil persons. They would kill their own grandmother to gain power, control, etc. Law and rules mean nothing except unfortunate encumbrances. Hereafter we will simply call this evil, grasping, conniving 1% "the entourage", simply understanding it is only 1% or so of those managers at that level. But the entourage is the level at which all the skullduggery, murders, assassinations, etc. are planned and either carried out or arranged. We are speaking of every large and powerful organization on Planet Earth! The entourage is dictated by primate dominance, and this big monkey game has been going on in humans as long as there have been humans.

xxxvii. (a) "The Takahashi Magnets and Motor", *Infinite Energy*. Vol. 1, No. 5&6, Nov 1995/Feb1996, pp. 35-37; (b) Tony Edwards, "'Accident' in lab creates super motor." *The [London] Sunday Times*, Dec. 10, 1995. Edwards reported an electric motor scooter with top speed of 50 mph and range of more than 500 miles using an electromagnetic engine and magnets developed by Takahashi.

The new scooter, developed by Sciex Corporation of Japan, ran on four ordinary 12-volt car batteries. The magnets were based on powder-metallurgy techniques and special

neodymium material which produced a magnet with the world's highest Megagauss Oersted rating at the time. 55 MgOe was the maximum previously, but Takahashi's magnet material achieved 120 MgOe. The Takahashi engine produced 15 horsepower from just a few amperes of electricity. When the scooter was free-wheeling, the engine became a generator and partially recharged the batteries.

Another novel use of the Takahashi magnets was as "battery doublers" to extend the life of rechargeable batteries. Thin inch-wide squares, attached to mobile phone batteries, doubled the amount of charge they retained and allowed the batteries to last twice as long. (c) Also see entries under magnetic Wankel engine, in T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*. Cheniere Press, Santa Barbara, CA, 2002, p. 363-368.

Any university electrical engineering department worth a hoot can readily build a magnetic Wankel engine, which kills its back mmf and thus continuously develops torque in a single rotary direction. One pays only a tiny bit to kill the back mmf, and self-powering of the system and its load can be achieved by tapping off a bit of power from the shaft-powered generator, and feeding it back to power the switching and control circuit. That none of our EE departments design and build such devices is a sad commentary on the lack of "forward vision" of our scientific community.

xxxviii. (a) Teruo Kawai, "Motive Power Generating Device," U.S. Patent No. 5,436,518. Jul. 25, 1995; (b) see also Bearden, *Energy from the Vacuum*. 2002, p. 363, 371-375, 500. In 1996 Kawai met with this author and his CTEC board of directors, here in Huntsville, Alabama. After much negotiation on his second trip here, Kawai and CTEC reached agreement. We at CTEC would immediately proceed to set up laboratory and production facilities for producing and marketing worldwide Kawai's self-powering motor, so that in 1997 we would have had such systems in mass production and on the world market everywhere. Our only exclusion would have been Japan, as Kawai had already licensed the marketing rights for that nation. Kawai was backed by the second richest man in Japan, a multimillionaire, and he was financing our effort himself. In short, full financing was already accomplished. The night of the same day that we reached agreement verbally, a private jet arrived post haste from Los Angeles, with Yakuza on board. The next morning Kawai no longer controlled his company, his invention, or his own fate. He was absolutely stunned and shamed, and could hardly lift his head to look me in the eye. He was a totally broken man. Instead, we found ourselves facing the arrogant Yakuza, some with the blue markings and the missing fingers, and very hostile Japanese. The agreement with Kawai was dissolved by the Yakuza right there on the spot. The Japanese team then coldly packed up the Kawai motors that had been shipped to us, and bundled up the Kawai team and left. And that was that. But once one understands the Yakuza's role in this Operations Phase that opened about the first of 2005, one then understands why the Yakuza have suppressed all the Japanese overunity EM systems.

xxxix. Appreciable details on Nathan Stubblefield and his inventions are given by Gerry Vassilatos, *Lost Science: New Edition*. Adventures Unlimited Press, 2000. Tesla visited Stubblefield and got some of his own impetus from observing the anomalous and awesome electrical power effects achieved by Stubblefield. Many of the stunning effects achieved by Stubblefield have also been successfully replicated by inventor John Bedini.

xl. We give the specific nuclear reaction in T. E. Bearden. *Energy from the Vacuum: Concepts and Principles*. Cheniere Press, 2002, p.569, reaction equation (12).

xli. See

<http://www.pbs.org/wgbh/pages/frontline/shows/cyberwar/interviews/weiss.html>.

xlii. According to Italian channel RAI 1, on Sept. 18, 2004 there was an attempt on Putin's life by planting two car bombs along his automobile route. Security forces discovered the cars and dismantled the bombs. Putin has also nullified the election process in Russia, and has thus returned the nation to some of the stronger control mechanisms by the old Communist Party methods. One sees the heavy hand of the Communist faction of the KGB/FGB — which controls the organization and the superweapons and thus controls Russia — as behind the return to greater authoritarian hold over the Russian populace.

xliii. See Matthew Kaminski, "KGB Democracy," Wall Street Journal, Sept. 17, 2004, p. A14.

xliv. For a commentary, see (a) Henry Sokolski, "It's Almost Too Late to Stop Iran," Wall Street Journal, Sept. 27, 2004, p. A18. See also (b) Henry D. Sokolski and Patrick Clawson, Editors, *Checking Iran's Nuclear Ambitions*, Institute for Strategic Studies, 2004. As of this writing, Iran is continuing on its path to building nuclear reactors capable of furnishing weapons grade materials for nuclear weapons. Further, Russia is again assisting Iran in building the reactors.

xlv. Fatwah, Feb. 1998, issued in the name of the World Islamic Front, and signed by Bin Laden, Zawahiri, and two others.

xlvi. Osama Bin Laden, ABC-TV Interview in Afghanistan, May 1998.

xlvii. The 9/11 Commission Report, Sept. 2004, p. 51 -52.

xlviii. Vice President Dick Cheney, October 21, 2001.

xlix. As reported by Niall Ferguson, "Sinking Globalization," *Foreign Affairs*, 84(2), Mar./Apr. 2005, p. 76-77. Ferguson is Professor of History at Harvard University, a Senior Fellow at the Hoover Institution, Stanford University, and a Senior Research Fellow of Jesus College, University of Oxford.

1. [http://www.math.uio.no/~karstent/waves/index\\_en.html](http://www.math.uio.no/~karstent/waves/index_en.html) contains a summary article on mathematical attempts to model freak waves and uncover their causes. The article is Kristian B. Dysthe et al, "Freak Waves, Rogue Waves, Extreme Waves and Ocean Wave Climate," June 2003. The authors are all mathematicians at various Norwegian universities and doing research on such waves. As can be seen, these types of waves occur far more frequently than previously suspected, can be larger than previously thought possible, but are also still little understood. Some of the attempted theoretical explanations are summarized in the article, with pros and cons of each being given also.

li. See <http://news.bbc.co.Uk/1/hi/sci/tech/3917539.stm>, "Freak Waves Spotted from Space", BBC News.

lii. Per statistics of the Head Department of Navigation and Oceanography (HDNO) of the Russian Federation Ministry of Defence.

liii. See Bill McGuire, *A Guide to the End of the World: Everything You Never Wanted to Know*. Oxford University Press, paperback, Aug. 2004 details the phenomenology of large volcano eruptions, supervolcanoes, and tsunamis, among other catastrophic geological events. McGuire is the Benfield Professor of Geohazards and also is

the Director of the Benfield Greig Hazard Research Centre, Department of Geological Sciences, University College London, Gower Street, London WC1E 6BT.

liv. See "Supervolcanoes," BBC2, Thursday 3 Feb. 2000; available for downloading from website <http://exodus2006.com/transcript.htm>.

lv. See <http://www.anthro.uiuc.edu/faculty/ambrose>. Stanley H. Ambrose is an Associate Professor in the Department of Anthropology and Department of Nutritional Sciences at the University of Illinois Urbana-Champaign, and also is Director of the Anthropology department's Environmental Isotope Paleobiogeochemistry Laboratory.

lvi. E.g., see Jorge A. Vazquez and Mary R. Reid, "Probing the Accumulation History of the Voluminous Toba Magma," *Science*. Vol. 305, 13 August, 2004, p. 991-994.

lvii. From a transcript of an interview on BBC, available for downloading on website <http://www.davidbrown.co.uk/nota-bene/dna.html>.

lviii. See Merritt Ruhlen, *The Origin of Language: Tracing the Evolution of the Mother Tongue*, Wiley, 1996. There is also persuasive linguistic evidence supporting this bottleneck hypothesis, along the lines presented by Ruhlen. Our special thanks to Marcia Stockton for pointing this out.

lix. E.g., see (a) Stanley H. Ambrose, "Late Pleistocene human population bottlenecks, volcanic winter, and differentiation of modern humans," *Journal of Human Evolution*. Vol. 35, 1998, p. 115-118; (b) S. H. Ambrose, "Population Bottleneck," in R. Robinson (ed.), *Genetics*. Macmillan Library Reference, 2002 [a 4-volume encyclopedia of genetics]; (c) M. R. Rampino and S. H. Ambrose, "Volcanic winter in the Garden of Eden: The Toba super-eruption and the Late Pleistocene human population crash," in F. W. McCoy and G. Heiken, (eds.), *Volcanic Hazards and Disasters in Human Antiquity*. Geological Society of America Special Paper, Vol. 345, 2000, p. 71-82.

lx. For detailed modeling, see Steven N. Ward and Simon Day, "Cumbre Vieja Volcano — Potential collapse and tsunamis at La Palma, Canary Islands," *American Geophysical Union*, 2001. Available from <http://www.benfieldhrc.org/SiteRoot/tsunamis/WardandDay.pdf>.

lxi. See [www.oceansatlas.org/unatlas/issues/emergencies/OceanPhenHDNO/Dangerous.html](http://www.oceansatlas.org/unatlas/issues/emergencies/OceanPhenHDNO/Dangerous.html). The information on hazards to shipping and losses of shipping is provided by the Head Department of Navigation and Oceanography (HDNO) of the Russian Federation Ministry of Defence.

lxii. Marcia Stockton, private communication.

lxiii. James Davison Hunter, *Culture Wars: The Struggle to Define America*. Basic Books, New York, 1991 (Paperback edition, 1992). Dr. Hunter is Director, Institute for Advanced Studies in Culture, and is also the William R. Kenan Jr. Professor of Sociology and Religious Studies at the University of Virginia.

lxiv. John Zogby, President of the Zogby International Survey firm. Quoted from John Mariani, "Zogby Describes Divided Nation," *The Post Standard*. Sept. 24, 2004. Article is carried on website <http://www.synracuse.com/elections/poststandard/index.ssf?/base/news-1/1096017657151770.xml>

lxv. Details of these dramatic deaths, and how they were technically achieved, are given in T. E. Bearden, *Fer-de-Lance*. Chenicre Press, updated 2003.

lxvi. Stanislav Lunev (with Ira Winkler), *Through the Eyes of the Enemy*, Regnery, Washington, 1998. Lunev is the highest ranking GRU defector. He is a former Colonel in the GRU, the military counterpart of the KGB. In p. 22-33, he summarizes the Spetznaz capabilities. On p. 22-27, he summarizes Spetznaz use of nuclear weapons already on American soil. On p. 26, he gives some of the ways in which the Soviets easily brought nuclear weapons into the U.S. On p. 30 he confirms Russian seismic weapons. Use of EMP weapons is on p. 30-31.

lxvii. U.S. General George S. Patton Jr., in his speech to Third U.S. Army troops on the eve of Operation Overlord in 1944.

lxviii. As a typical example, see Colin S. Gray, "Thinking Asymmetrically in Times of Terror," *Parameters*. U.S. Army War College Quarterly, Spring 2002, p. 5-14. The basic message of the article is that asymmetric war is really nothing new, even the concept doesn't have any real content, and the terrorists can do a little damage and we will take some damage, but we will survive as always. In the vernacular, it proposes that we shouldn't sweat the small stuff; everything is still AOK and there isn't any really new or unique problem. Now contrast this with the recent registration of a Yakuza scalar interferometer on the Yellowstone caldera, so that in a single shot most of the United States can be destroyed. We really do not recall seeing that kind of thing occur in our past "asymmetric" wars, nor do we see initiation of earthquakes such as the 9.3 quake on the seafloor on Dec. 26, 2004 that initiated the catastrophic tsunamis in Asia. But one notes that, in 2002 — five years after Defense Secretary's confirmation of special terrorist EM weapons generating earthquakes, evoking volcanoes into eruption, and controlling our climate and weather — the official publication *Parameters* of the U.S. Army War College apparently has no knowledge whatsoever of such terrorist capabilities or of such terrorist demonstrations.

lxix. Missing and unaccounted, in the official Ukraine records and accounting for its nuclear weapons transfer to Russia. The reader should understand that there are no officially acknowledged missing nuclear weapons, and there likely never will be! In the real world, there turns out to be hundreds of such weapons that have "mysteriously disappeared from accounting," and then in the hue and cry and charges and counter charges, the hullabaloo has just faded away and been ignored.

lxx. The Ministry of Defense reported on transfer and destruction by the Ukraine of 3772 nuclear warheads, but the general staff reported there were more than 4,000 to begin with. In other words, something other than transfer or destruction was done with some 230 or so Ukrainian nuclear warheads.

lxxi. Even under U.S. agreement with the Russians (START II) for dismantling some of the nuclear weapons, there has been no truly accurate accounting. E.g., quoting from Jo L. Husbands, *BITS Research Report 97.1, Part II: Domestic and International Politics: The U.S. Response to the Russian Nuclear Legacy*. Nov. 1997: "From the outset, the Russian government was unwilling to permit the United States to have a role in the actual dismantlement of former Soviet/Russian nuclear warheads. The United States therefore cannot say with certainty how many warheads have actually been dismantled at the four Russian dismantlement facilities..." In other words, much of it is smoke and mirrors.

So the reports of precisely how many warheads were transferred and/or dismantled and destroyed are not accurate at all in their "total numbers," and they never have been. Instead, the infamous and deceitful catch-all phrase so long used by our intelligence agencies to cover ignorance was invoked. The phrase is "We have no evidence that....," which usually is a bald-faced attempt to cover up something which we absolutely do not know the truth or falsity of, or that is embarrassing, or that is a political hot potato. Usually the evidence is indeed there somewhere, but it indicates something contrary to the prescribed "official intelligence position" of the agency. Analysts who push too hard in advancing what the intelligence database really states, when it is against the official policy position, do not fare well or last very long in the U.S. intelligence community.

lxxii. In 1996 Gen. Alexander Lebed, then President Boris Yeltsin's national security adviser, reported that 84 suitcase-size nuclear weapons were missing from Russia's arsenal. Other Russian officials denied the claim, and U.S. officials discounted it. The matter was never resolved, but just gradually ignored.

lxxiii. Paul L. Williams, *Al Qaeda: Brotherhood of Terror*. Alpha Books, Indianapolis, 2002 states Russian and U.S. intelligence sources are aware that bin Laden purchased 20 suitcase nuclear weapons in 1998 from Chechen Mafia agents for \$30 million in cash and a quantity of heroin whose street value was \$700 million. Williams is a former FBI consultant and the author of several important books on terrorism.

lxxiv. Eliot Marshall; David Malakoff, and Constance Holden, "Bioweapons Cleanup," *Science*. Vol. 295, 25. Jan. 2002, p. 603.

lxxv. Simon Reeve, *The New Jackals: Ramzi Yousef. Osama bin Laden, and the Future of Terrorism*. Northeastern University Press, Chicago, 1999, p. 208.

lxxvi. The study reference is: U.S. Congress, Office of Technology Assessment, *Proliferation of Weapons of Mass Destruction: Assessing the Risks*. Government Printing Office, Washington, 1993, p. 54.

lxxvii. Richard K. Betts, "The New Threat of Mass Destruction," *Foreign Affairs*. 77(1). Jan/Feb. 1998, p. 32.

lxxviii. Manitoba Health, *Emergency Treatment Guidelines: General - Triage*. Aug. 2004. This Canadian guide is deliberately referenced to show that the triage procedure is a necessary medical emergency procedure, recognized internationally.

lxxix. Our own National Institutes of Health (NIH) knows nothing about higher group symmetry electrodynamics, knows nothing about precursor engineering (the Soviet energetics science), at best knows the standard but seriously flawed electrical engineering and classical Maxwell-Heaviside electrodynamics, never understood the induction of health changes and diseases in U.S. Embassy personnel in Moscow by the decades of so-called "microwave radiation of the U.S. Embassy." knows nothing of the mechanism proved by Priore and important French scientists to yield revolutionary electromagnetic cures for dread terminal illnesses (such as cancer, clogging of the arteries, some infectious diseases tested, etc.), knows absolutely nothing at all about Soviet bioenergetics or its mechanisms and capabilities, and certainly knows nothing of (and does not even "believe") the startling capabilities of Soviet/Russian/FSB/KGB psychoenergetics and its biogenesis ability to build an actual living mind and mind operations in the laboratory, then clone or reproduce it or them by the millions.

NIH and its subsidiary organizations seem interested in maintaining the status quo in medical science and adhering scrupulously to present medical treatment mechanisms and theoretical understanding. They seem to block and deny any and all more advanced and innovative research, particularly if advanced group symmetry electrodynamics is involved.

They have little knowledge of the actual healing mechanism of the body (its cellular regeneration system, which is a highly special electromagnetic system), and do not understand the higher group symmetry electrodynamics of that system. Further, they do not intend to even study the kind of "novel" electrodynamics and electrodynamics' mechanisms used by the body for all its cellular healing processes. Instead, they are absolutely determined to continue with drugs, vaccinations, surgery, antibiotics, and conventional medical therapies. They therefore are determined that the majority of those coming mass casualties from anthrax spray attack etc. shall be untreatable, so that most of those poor patients will be dragged aside and left to die without treatment, under Triage procedures. Hitler in all his death camps may not have produced as many millions of deaths as will this dogmatic policy of our medical science institutions.

Consequently, we are 50 years behind where we should be in medical therapy technology. We are also extremely vulnerable to mass casualties generated in our population centers by terrorist WMD attacks. Whether intentional or unintentional, NIH's actions and policies are designed to keep us in that situation indefinitely.

lxxx. (a) Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981. An English exposition of much of the Kaznacheyev work is given in (b) Vlail Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76. See also (c) Vlail Kaznacheyev, "Apparent information transfer between two groups of cells," *Psychoenergetic Systems*, 1(1), Dec. 1974, p. 37. (d) Vlail Kaznacheyev et al., "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, 1(3), Mar. 1976, p. 141-142. In the same issue, see (e) "A Comment" by William A. McGarey, p. 143; and (f) "A Comment" by Arthur C. Hastings, p. 143-144.

lxxxi. Aitchison, I. J. R., "Nothing's Plenty: The Vacuum in Modern Quantum Field Theory," *Contemporary Physics*, 26(4), 1985, p. 372.

lxxxii. See Rick Weiss, "NIH to Set Stiff Restrictions on Outside Consulting," *Washington Post*, Aug. 4, 2004, p. A01.

lxxxiii. "US NIH Wants 1 Year Moratorium on Drug Co. Collaborations," *Dow Jones Newswires*, 9-24-04 1318ET.

lxxxiv. (a) The U.S. Patent is "Pathogenic Mycoplasma", US Patent No. 5,242,820, issued September 7, 1993. Dr Lo is listed as the Inventor and the American Registry of Pathology, Washington, DC, is listed as the "Assignee"; (b) for a summary, see Donald W. Scott, "Mycoplasma: The Linking Pathogen in Neurosystemic Diseases," *Nexus Magazine*, Aug. 2001. Particularly see (c) US Senate, Ninety-fifth Congress, Hearings before the Subcommittee on Health and Scientific Research of the Committee on Human Resources. *Biological Testing Involving Human Subjects by the Department of Defense*, 1977; released as US Army Activities in the US Biological Warfare Programs, Volumes One and Two, 24 February 1977. See also (d) Donald W. Scott and William L. C. Scott, *The Brucellosis Triangle*. The Chelmsford Publishers, Sudbury, Ontario, Canada, 1998.



lxxxv. The interested reader is referred to our "Porthole Briefing" on website [www.cheniere.org](http://www.cheniere.org).

lxxxvi. (a) T. E. Bearden, *Energetics: Extensions to Physics and Advanced Technology for Medical and Military Applications*, Mar. 21, 1998, 200+ page enclosure to CTEC Letter to Gen. (Ret.) Walter Busby, Deputy Secretary of Defense for Counterproliferation and Chemical and Biological Defense, March 21, 1998., also the enclosure to CTEC letter to Major General Thomas H. Neary, Director of Nuclear and Counterproliferation, Office of the Deputy Chief of Staff, Air and Space Operations, HQ USAF, May 4, 1998. Copies were also sent as enclosures to letters to NIH, CDC, and several other government agencies and laboratories, (b) T. E. Bearden, "Method, System and Apparatus for Conditioning Electromagnetic Potentials, Fields, and Waves to Treat and Alter Matter," Application No. 60/339,122, Dec. 7, 2001. This is the provisional patent application that the present author openly released to the public domain in Dec. 2002, and it is posted on [www.cheniere.org](http://www.cheniere.org). (c) See also T. E. Bearden, *Porthole Briefing*, available on [www.cheniere.org](http://www.cheniere.org).

lxxxvii. (a) B. Baker; J. A. Spadaro, and R. O. Becker, "Electrical stimulation of articular cartilage," *Annals of New York Academy of Sciences*. Vol. 238, 1974, p. 491-499; (b) R. O. Becker, Carlton F. Hazlewood, Abraham R. Liboff, and Jan Walleczek, "Electromagnetic Applications In Medicine," NIH-OAM Electromagnetics Panel Report, Jan. 15, 1993; (c) Robert O. Becker and Andrew A. Marino, *Electromagnetism and Life*. State University of New York Press, Albany, 1982; (d) Robert O. Becker, "The neural semiconduction control system and its interaction with applied electrical current and magnetic fields," *Proceedings of the XI International Congress of Radiology*. Vol. 105, 1966, p. 1753-1759, Excerpta Medica Foundation; Amsterdam; (e) R. O. Becker, "The direct current field: A primitive control and communication system related to growth processes," *Proceedings of the XVI International Congress of Zoology*, Washington, D.C., Vol. 3, 1963, p. 179-183; (f) R. O. Becker, Charles H. Bachman, and Howard Friedman, "The direct current system: A link between the environment and the organism," *New York State Journal of Medicine*. Vol. 62, April 15, 1962, p. 1169-1176.

lxxxviii. R. O. Becker and David G. Murray, "The electrical control system regulating fracture healing in amphibians," *Clinical Orthopaedics and Related Research*. No. 73, Nov.-Dec. 1970, p. 169-198. This is the definitive technical exposition by Becker of his electrical control system ideas and findings.

lxxxix. (a) R. O. Becker and D. G. Murray, "A method for producing cellular dedifferentiation by means of very small electrical currents," *Trans. N.Y. Acad. Sci.*. Vol. 29, 1967, p. 606-615; (b) Becker, R. O., and Joseph A. Spadaro, "Electrical stimulation of partial limb regeneration in mammals," *Bulletin of the New York Academy of Medicine*. Second Series, 48(4), May 1972, p. 627-64' (c) C. A. L. Bassett; R. O. Becker, and R. J. Pawluk, "Effects of electric currents on bone in vivo," *Nature*, Vol. 204, Nov. 14, 1964, p. 652-654.

xc. T. E. Bearden, *Porthole Briefing*, available on [www.cheniere.org](http://www.cheniere.org).

xc. See (a) A. J. Berteaud and A. M. Bottreau, "Analyse des rayonnements electromagnetiques emis par l'appareil Priore," [Analysis of the electromagnetic radiations emitted by the Priore apparatus], D.R.M.E., 1971, p. 3-12; (b) A. J. Berteaud, A. M. Bottreau, A. Priore, A. N. Pautrizel, F. Berlureau, and R. Pautrizel, "Essai de correlation entre revolution d'une affection par Trypanosoma equiperdum et l'action d'une onde

electromagnetique pulsee et modulee," [Trial of the correlation between the evolution of a disease by Trypanosoma equiperdum and the action of a pulsating and modulated electromagnetic wave], Compt. Rend. Acad. Sci. (Paris), Vol. 272, 1971, p. 1003-1006; (c) R. Cambar, "Rapport general des travaux de la Commission de Controle constituee en vue de verifier l'un des effets biologiques obtenu par l'utilisation de l'appareillage de Priore A. Bordeaux," [General findings of the work of the control commission formed to verify one of the biological effects obtained by use of the apparatus of A. Priore at Bordeaux], 1969, 1 vol.; (d) R. Courrier, "Expose par M. le Professeur R. Courrier, Secretaire Perpetuel de L'Academie des Sciences fait au cours d'une reunion a L'Institut sur les effets de la Machine de M.A. Priore le 26 Avril 1977," [Presentation by Professeur R. Courrier, Perpetual Secretary of the Academy of Sciences, made at the meeting of the Academy on the effects of the machine of M.A. Priore.]; (e) G. Delmon and J. Biraben, "La croissance du carcinome de Guerin sous l'action de champs electromagnetiques," [The growth of carcinoma treated by the action of electromagnetic fields], Rev. Path. Comp., 3(2), 1966, p. 85-88; (f) G. Mayer, A. Priore, G. Mayer and R. Pautrizel, "Action de champs magnetiques associes a des ondes electromagnetiques sur l'orchite trypanosomienne du lapin," [Action of magnetic fields associated with electromagnetic waves on the trypanosomian orchitis of the rabbit], Compt. Rend. Acad. Sci. (Paris), Vol. 274, 1972, p. 3011-3014; (g) Priore's doctoral thesis (which was rejected when the project was suppressed) is: Guérison de la Trypanosomiase Experimentale Aigue et Chronique par L'action Combinee de Champs Magnetiques et D'Ondes Electromagnetiques Modules [Healing of intense and chronic experimental trypanosomiasis by the combined action of magnetic fields and modulated electromagnetic waves], thesis submitted in candidacy for the doctoral degree, 1973; (h) Eric Perisse, Effets des Ondes Electromagnetiques et des Champs Magnetiques sur le Cancer et la Trypanosomiase Experimentale [Effects of Electromagnetic Waves and Magnetic Fields on Cancer and Experimental Trypanosomiasis], Doctoral thesis, University of Bordeaux No. 83, March 16, 1984; (i) For a limited background and light technical coverage of Priore's work for the educated layman, see T. E. Bearden, "Vacuum Engines and Priore's Methodology: The True Science of Energy-Medicine, Parts I and II," Explore!. 6(1), 1995, p. 66-76; 6(2), 1995, p. 50-62; (j) For somewhat more specific technical details, see T. E. Bearden, Energetics of Free Energy Systems and Vacuum Engine Therapies. Tara Publishing, Internet node [www.tarapublishing.com/books](http://www.tarapublishing.com/books), July 1997; (k) for a summary of the entire Priore affair, see Christopher Bird, "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," Explore!. 5(5-6), 1994, p. 97-110; (l) For detailed coverage of the entire Priore affair, see Jean-Michel Graille, Dossier Priore: Une Nouvelle Affaire Pasteur. [The Priore Dossier: A New Pasteur Affair?], De Noel, Paris, 1984 [in French]; (m) For a technical description of the ordinary EM and physics characteristics of the Priore radiation (but not the active mechanism), see A. J. Berteaud and A. M. Botreau, "Analyse des rayonnements electromagnetiques emis par l'appareil Priore," ["Analysis of the electromagnetic radiations emitted by the Priore apparatus"], D.R.M.E., 1971, p. 3-12. Priore's patents are (n) Antoine Priore, "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968; (o) Antoine Priore, "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966, (p) Antoine Priore, "Precede et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], Republique Francais Brevet d'Invention P.V. No. 899.414, No. 1,342,772, Oct. 7, 1963.

xcii. See Laurie Garrett, "The Nightmare of Bioterrorism," *Foreign Affairs*. 80(1), Jan. /Feb. 2001. p. 76-89. 1 lie quote is from p. 77.

xciii. As reported in "Alert as Nuclear Bombs Go Missing," *The Drudge Report*. Sept. 17, 2002.

xciv. Matthew Bunn and Anthony Wier, "Preventing a Nuclear 9/11," *Washington Post*, Sept. 12, 2004, p. B07.

xcv. Ibid.

xcvi. Paul L. Williams, *Osama's Revenge: The Next 9/11: What the Media and the Government Haven't Told You*." Prometheus Books, 2004. Williams is a former FBI consultant and author of several treatises on terrorism.

xcvii. Paul L. Williams, *Al Qaeda: Brotherhood of Terror*. 2001.

xcviii. See (a) T. E. Bearden, *Fer-de-Lance*. Cheniere Press, 2003 (updated) for some details on quantum potential weapons and their usage. Also see (b) T. E. Bearden, *Gravitobiology*. Cheniere Press, 2003 (updated) for additional details. Some five nations of the world now possess QP weapons, and a sixth nation is obtaining them. China, Russia, Brazil, Israel, and one other friendly nation are the five present nations.

xcix. For background on such tsunamis when naturally induced, see David R. Tappin, Editor, *Submarine-slump-generated Tsunamis*. Special edition of *Marine Geology*. Volume 203, Issues 3-4, 30 January 2004, pages 199-386.

c. Paul H. B. Shin, "Killer wave lying in wait: Volcano could unleash horror," *New York Daily News*. Aug. 29, 2004, <http://www.nydailynews.com/news/story/226886p-194881c.html>.—

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QUITON/PERCEPTRON PHYSICS:  
A THEORY OF EXISTENCE, PERCEPTION, AND  
PHYSICAL PHENOMENA

by  
Thomas E. Bearden

March 1973

*Approved for public release; distribution unlimited.*



THE SAM-D PROJECT  
REDSTONE ARSENAL, ALABAMA

SURFACE TO  
AIR  
MISSILE  
DEVELOPMENT

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## ABSTRACT

A fundamental answer is attempted to the questions of being, time, space, existence, perception, and physical phenomena. Mass, empty space, reality, gravitational attraction, continuity, discontinuity, and relativity are among the "things" and "nonthings" for which relationships and explanations are provided.

Perception is defined as detection by a mass of change to itself and as a differentiating process. Perceived physical phenomena are revealed to be first derivatives of ultimate reality, and outputs of the physical perceiving device call the "perceptron." Using the operation of the physical perception process on action, the units of which are energy times time, an entirely different view is generated of both reality and the Heisenberg uncertainty principle. When superposition is imposed as a condition, the Heisenberg uncertainty principle is revealed to be a quantized statement. A concept of the absolute value of a dimensional molecule is advanced.

A reality model is constructed of an action continuum and a nonaction continuum separated by an operational threshold whose magnitude is given by an uncertainty principle. Perception is modeled as a process which switches atomic quanta of action and nonaction back and forth across the threshold. Mass is explained as perceptron switch activity rate, and a mass definition equation is generated. One kilogram mass is shown to represent  $17.053 \times 10^{50}$  perceptron switches per second. From the model, Newton's laws of motion and gravity can be generated directly from the concept of the interaction of mass with space itself, space being taken as a massless fluid, or ether, composed of tiny nonaction particles called "quitos." Einstein's postulates of special relativity are also shown to follow from the model, and a statement of the equivalence principle is shown to be consistent with the model.

The concept of "lineception" as a causal chain of perceptron operations is advanced. "Inception" is developed as a noncausal modulation of lineception and as a distinguishing feature of a living system. The possibility is raised that inception could provide an explanation of the noncausal, statistical, ultramicroscopic universe and yet require large ensembles of ultramicroscopic events to conform to causality. Inception is shown to lead to karma. Perception is shown to be causal and to generate causality itself.

Some elementary philosophical implications of quiton/perceptron theory are pointed out and briefly discussed.

## I. INTRODUCTION

The unsolved problems of physics stem from the unclear nature of the physical perception of change, and their resolution lies in the analysis of perception as a physical process. The unsolved problems of metaphysics stem from the same source, and can be resolved by the same perception analysis.

Specifically, a physical detection system can detect changes to itself and nothing else. These detected internal changes are thus what a detector "sees" or "observes" or "perceives" as changes to its external environment, i. e., as its physical phenomena. Thus a mass, being itself a physical detecting system, must detect only changes to itself, and these perceived changes to itself constitute its observed physical phenomena. For that reason, these perceived changes are obviously entirely relative to (i. e., are part of) the perceiver (observer); more precisely, they are entirely relative to and part of the perceiver's mass, which is the detector that is doing the perceiving.

Since only changes are perceived by a mass, then mass's perception must be a differentiating process. Ergo, perceived physical phenomena are first derivatives of a higher, or more fundamental, reality. The nature of that higher reality is by definition unperceivable (perception differentiates or fragments it), and it involves the quantity "action."<sup>1</sup> Action itself is not perceivable; change of action is perceivable since perception differentiates action. If superposition is placed on the Heisenberg uncertainty principle as a required condition, then the uncertainty principle contradicts itself for all except integral or zero multiples of a quantum of action. Correction of the uncertainty principle by imposing superposition as a condition provides a statement of the basic operation of perception -- the detection by a mass of change to itself.

All mental perception of a human being regarding physical phenomena is received (i. e., is inputted to the mind) from a physical sensory apparatus whose primary ingredient is mass. Thus we may describe the perceptive mind as consisting of sensory outputs of mass perceptions; that is, the input to mental perception must be the output of mass perception, and this interface within the mind may be referred to as the "perceptive mind."

From the above foundation, a comprehensive theory of perception can be constructed, and a most unusual model of "reality" emerges. A variety of unsolved questions are then resolved by the model. The resolutions include, among other things, 1) derivation of the postulates of relativity; 2) definition of the nature of time and space; 3) the explanation of gravity; 4) the generation of causality itself; 5) resolution of the wave theory of light with the quantum theory of light; 6) the explanation of why ultramicroscopic phenomena are statistical yet large ensembles of ultramicroscopic phenomena are causal; and 7) validation of Mach's principle and the equivalence principle. A totally new and precise definition of mass and of being itself are also two unexpected results. The problems of metaphysics are also answered: metaphysics is elevated to an exact science without any tinge of dogma, and physics and metaphysics are united.

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<sup>1</sup> Planck's constant, Heisenberg's uncertainty principle, the principle of least action, the energy of a photon, etc., are derived from action and perception's differentiation of action.



## II. EXISTENCE, PERCEPTION, OBSERVATION AND PHYSICAL PHENOMENA

We first define perception<sup>1</sup> as detection by a mass of change<sup>2</sup> to itself, and state that it is an operation performed by that mass. The physical apparatus that accomplishes this perception is termed a "perceptron," which thus may be an electron, an atom, or the sensory apparatus of a living being.

A change detector does not detect the state of its input, but rather detects changes in that state. So in this sense a change detector can be regarded as a state differentiator. Therefore a perceptron differentiates, i. e., it perceives changes in its input and generates outputs in accordance. When its input is constant it will have no output. Thus zero output of a perceptron does not necessarily mean zero input.

What is to be fed into the perceptron's input section exists; i. e., existence (ultimate reality)<sup>3</sup> is defined as what is to be fed into the perceptron's input. The output of the perceptron is that which is perceived, or what we ordinarily call "physical phenomena."<sup>4</sup> Since the perceptron differentiates its input state, then physical phenomena are first derivatives of ultimate reality, which precisely accounts for the sharp separation between observable and nonobservable, i. e., between macroscopic and microscopic.

Any change in a perceptron's input section must involve both time change,  $\Delta t$ , and energy change,  $\Delta E$ . So we may assume their product,  $\Delta E \Delta t$ , has always occurred in a perceptron's input whenever it produces an output. The output will be a derivative of the input, e. g.,

$$\frac{\Delta E \Delta t}{\Delta t} = \Delta E \quad (1)$$

and

$$\frac{\Delta E \Delta t}{\Delta E} = \Delta t, \quad (2)$$

where in each case the constant of proportionality has been ignored.

<sup>1</sup>We differentiate between perception and realization. Perception is entirely a physical process, and causal. Realization is a mental process and is not restricted to causal relationships.

<sup>2</sup>Reflecting, one notes that mass can only change in a nonmass manner. It cannot "change" without involving space and time, both of which are "nonmass." Therefore a mass change must be composed of both mass and nonmass.

<sup>3</sup>"Ultimate" in that it is higher or more fundamental than perceived reality.

<sup>4</sup>Changes to mass and only changes to mass constitute physical phenomena. Changes to one mass constitute "its" perceived physical phenomena, or its physical universe.

"Changes to mass and only changes to mass constitute physical phenomena. Changes to one mass constitute "its" perceived physical phenomena, or its physical universe. Since the other masses in its universe are perceived by it (i.e., created in its perception by its perception process), then these masses must be entirely relative to the mass perceptron that perceives them. Ergo, perceived mass is relative to the perceiver.

Any detector has an operational input threshold, i. e., a minimum discernible signal. The Heisenberg uncertainty principle states the requirement for such energy-time changes:

$$\Delta E \Delta t \geq \hbar/2 . \quad (3)$$

Its smallest value, or

$$\Delta E \Delta t = \hbar/2 , \quad (4)$$

is then the input threshold for a physical perceptron to operate and produce an output.<sup>1</sup> Letting  $k = \hbar/2$ , we can write this simply as

$$\Delta E \Delta t = k . \quad (5)$$

Since existence has been defined as that which is fed into the perceptron's input, then that existence exists whether or not the perceptron operates, and the case<sup>2</sup> where

$$\Delta E \Delta t < k , \quad (6)$$

also exists (i. e., can be present in the input of a perceptron) but cannot be perceived or detected (i. e., the perceptron will not operate and produce an output).

At this point we diverge to remark that the product of energy and time is a quantity called "action," and the units of action are

$$A \equiv \frac{ML^2}{T} \quad (7)$$

Thus the input state to a perceptron is composed of an action continuum,<sup>3</sup> and the perceptron differentiates action quanta to produce physical phenomena.

<sup>1</sup>We acknowledge additional uncertainty statements but for simplicity will use only one in this paper.

<sup>2</sup>Equation (6) exists and it is proper to write it down and search out its ramifications. Equation (3) is a limiting condition which applies only to mass. But since our physical experience must involve nonmass (e.g., photons, space, time, being), then nonmass considerations must be examined. A good beginning is to consider the entire field of nonmass possibility, i.e., that field of nonmatter changes defined by (6), which includes the entire subquantum domain. So we legitimately examine two conditions: Eq. (3) must define (or apply as a condition to) the mass phenomena (change, quantized) system, and (6) must define (or apply to) the nonmass phenomena (subquantum) system.

<sup>3</sup>We exactly define continuity as the failure to perceive difference (change) and

phenomena (subquantum) system.

<sup>3</sup>We exactly define continuity as the failure to perceive difference (change), and discontinuity as the perception of difference (change). The difference between continuous and discontinuous is entirely one of perception. Thus there are two kinds of continuity: absence of perceptron operation at all, and identically repeated perceptron operations. The first kind exists outside of perception while the second kind exists in perception-to-perception. These are two powerful definitions, which among other things enable one to understand such concepts as limiting process, derivative, point, line, and plane. Mathematics itself is the game of perception, nothing more and nothing less.

When a large quantity of action is to be fed into a perfect perceptron, the input process cannot occur instantaneously; a  $\Delta t$  must be outputted (created)<sup>1</sup> by the perceptron for each operation. Thus perception processes steps or quanta of exactly  $k$  size, and exactly  $k$  size only. Inputs of less than  $k$  size are simply collected<sup>2</sup> until the aggregate is equal to  $k$ , then differentiated to produce an output. We must therefore rewrite the Heisenberg uncertainty principle as

$$\Delta A = nk \quad , \quad n = \pm 0, 1, 2, \dots \quad , \quad (8)$$

where the plus and minus signs are necessary since action only has to change about some constant level in the perceptron input, and this change may be either additive or reductive (this quantum statement is actually the basis for quantum physics).<sup>3</sup> Thus, from the viewpoint of a perceptron, its output universe of physical phenomena is constructed by successive granular differentiation of unit operations, each of size  $k$ , but it detects no time lapse (creates no  $\Delta t$ ) between operations.

When differentiated by a perceptron, an action atom may be regarded as being "chopped up" (the word "differentiated" literally means separated or torn apart):

$$\frac{\Delta E \Delta t}{n} = \frac{k}{n} \quad \bar{A} \quad , \quad n = 2, 3, 4, \dots \quad , \quad (9)$$

where the bar over the  $A$  indicates nonaction, or action atoms which have been broken into bits.

Thus we now conceive of an action continuum of action atoms and a nonaction continuum<sup>4</sup> of bits of action atoms. The two continua coexist and the perceptron

<sup>1</sup>Or "extracted from an action quantum  $\Delta E \Delta t$ ," which means exactly the same as "created." Einstein's treatment of simultaneity showed that it was operational, but if simultaneity itself is operationally created then both time and length must also be operationally created.

<sup>2</sup>This is not a simple discontinuous operation, since no time flow exists ( $\Delta t$  is not being outputted) during this collection process. We have to think of the process discontinuously, but the stepwise process is actually continuous (in time), or discontinuous, or both.

<sup>3</sup>Since  $\Delta E$  may be positive or negative, we may state the uncertainty principle as  $|\Delta E \Delta t| \geq k$ , or as  $\Delta A = nk$ ,  $|n| \geq 1$ . Consider the two cases  $\Delta A > 0$ ,  $n = 1$ , and  $\Delta A < 0$ ,  $-1 < n < -2$ . Superimposing them would give  $|\Delta A| < k$ , which violates the uncertainty principle. Thus, assuming superposition must hold, the uncertainty principle can be made to violate itself for all except integral values of  $n$ , and it follows that the Heisenberg uncertainty principle must be written as a quantized statement.

<sup>4</sup>The separation into two continua is artificial, but is necessary to allow us to perceive perceptron operation with our brain perceptron mind. There is absolutely



"The separation into two continua is artificial, but is necessary to allow us to perceive perceptron operation with our brain perceptron mind. There is absolutely no separation in the reality continuum itself; rather, there is only an operational separation caused by and in perception. Hegel was very nearly correct in his realization that the dialectical principle was the magic key to the universe of perceived phenomena. However, thesis (action) and antithesis (nonaction) do not meet to give a synthesis (the transfer function or switching) which is different from either; rather, thesis (action) is changed (transferred or switched) to its antithesis (nonaction) and vice versa. It is the switching or transfer process that is the synthesis (output of the perceptron, perception) which is different from the thesis and the antithesis.

operates, or moves, in them. Only action quanta of exactly  $k$  size can be processed by the operating perceptron to give outputs which we know as physical phenomena. Such phenomena (events) consist of aggregates of extremely large numbers of perceptron operations. Action atoms will be referred to simply as "action atoms." The very smallest bits or fragments<sup>1</sup> of action atoms will be referred to as "quitos" and the symbol " $q$ " used for one quiton. For convenience, we shall regard the "magnitude"<sup>2</sup> of  $q$  to be very much less than  $k$ , or

$$q \ll k. \quad (10)$$

The perceptron's process of collecting quitons to form action atoms will be termed "fusion," which is an additive change to the constant action continuum. "Fission" will be the term for the perceptron's process of breaking up action atoms into aggregates of quitons, where the size of each aggregate is less than  $k$ ; fission is a reductive change to the constant action continuum. The term "switching" will be used to refer to either fission or fusion, or both.<sup>3</sup>

Fission and fusion are merely transfers or switches across the  $k$ -threshold separating the action and nonaction continua, and may be represented by either of the diagrams shown in Fig. 1.

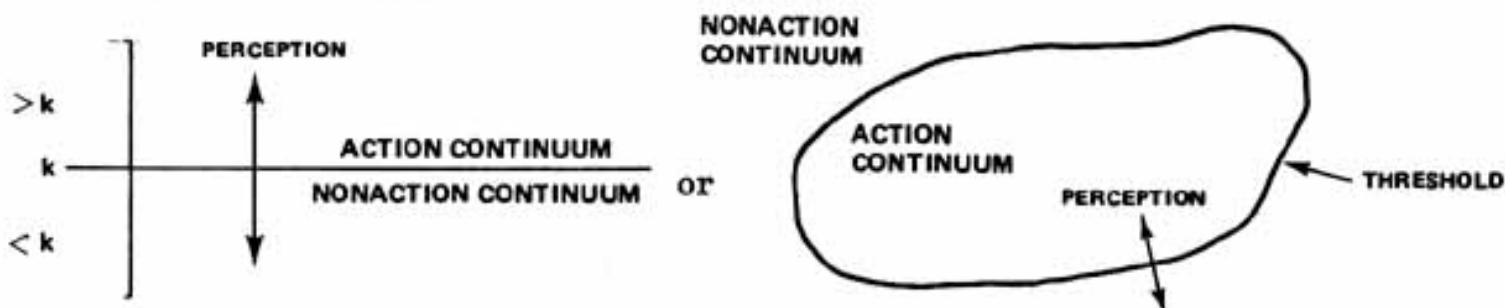


Fig. 1. Continua of the Universe

<sup>1</sup>These are actually nonthings and not bits or pieces at all, but since we can only perceive or think of things, we will model them as things. The difficulty is in the nature of thought, not in the nature of reality.

<sup>2</sup>The perceivable magnitude of a quiton is zero, i.e., it is not perceivable.

<sup>3</sup>And, in fact, switching can also refer to the transfer of  $\Delta t$  into  $\Delta L$ , i.e., the creation of space from time or vice versa. Separation (relation) is composed of  $\Delta L$  and  $\Delta t$ , and we know from relativity that when relativistic (perceived)  $\Delta L$  is changed, then relativistic (perceived)  $\Delta t$  is also changed. When time dilates, length contracts; and when time shrinks, length expands. Therefore the statement that length and time are intertransferrable is valid: one kind of separation can be transferred into another kind of separation just as one kind of energy can be changed into another kind of energy. Since this transfer itself is an operation, then there is a rate (i.e., a constant) of transfer. This constant is actually a parameter, since by special relativity it can vary as a function of the mass changes themselves. And since we are dealing with mass changes (perception), then the rate of transfer constitutes a rate of mass change (rate of perception). Since perception is state

Since by special relativity it can vary as a function of the mass changes themselves. And since we are dealing with mass changes (perception), then the rate of transfer constitutes a rate of mass change (rate of perception). Since perception is finite, perceived mass change cannot be infinite but must also be finite. Therefore a limiting rate of perception must exist. From the equations of special relativity, this limiting rate of perception or mass change is  $c$ , the speed of light, and its value may be taken as the rate of change of a mass switch itself.



We now examine the expression for energy of a photon:

$$E = hf \quad (11)$$

Considering fission of an action atom as a chopping of that atom, the process can be expressed by:<sup>1</sup>

$$\left[ \begin{array}{c} \text{Minimum} \\ \text{time rate of} \\ \text{change of action} \end{array} \right] = \left[ \begin{array}{c} \text{Energy} \\ \text{Transferred} \end{array} \right] \simeq \left[ \begin{array}{c} \text{atom of} \\ \text{action} \end{array} \right] \left[ \begin{array}{c} \text{cuts or chops} \\ \text{per second} \end{array} \right], \quad (12)$$

or

$$\frac{\Delta A}{\Delta t} = \Delta E = C_1 k f, \quad (13)$$

where  $C_1$  is a constant of proportionality. According to Eq. (1), the energy perceived to be expended (transferred to quiton disturbances) in fissioning of an action atom ought to be proportional to the speed of the chopping action. Neglecting constants of proportionality, Eq. (13) is simply<sup>2</sup>

$$\Delta E = hf, \quad (14)$$

where the  $\Delta$  symbol is deliberately added to show that it is a transfer process. The equation works in reverse for fusion of quitions into action atoms, i. e., the energy  $\Delta E$  transferred to each action atom assembled is proportional to its rate of assembly.

We can now represent a perceptron as shown in Fig. 2, which corresponds precisely to the two-pronged arrows shown in the diagrams of Fig. 1. A perceptron has two channels, fission and fusion, in which switching transfers between action and nonaction are involved.

By Eq. (2), one of the outputs of a perceptron is  $\Delta t$ . Since perception creates its own time interval, it only has its kind of time, i. e., positive time, to deal with. Thus only positive time is perceived, and what we think of as positive time flow is merely the successive  $\Delta t$ 's created by perception.<sup>3</sup>

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<sup>1</sup>Note how admirably the view of tearing apart or differentiating the action atom describes the result. The smaller the  $\Delta t$  torn from  $(\Delta E \Delta t)$  (or the quicker the separation), the larger the  $\Delta E$  left (produced), i. e., the more energetic the separation. The atom of action is a quantum of action and one integral piece; the  $\Delta E$  and  $\Delta t$ , however, are not necessarily of individually fixed size.

From the atom of action as a quantum of action and one integral piece, the  $\Delta E$  and  $\Delta t$ , however, are not necessarily of individually fixed size.

<sup>2</sup>Action atoms can occur in more than one size (see note 1 on p. 3).

<sup>3</sup>This explains why we sense existence as if we were the point of contact of a pointer moving along a time line. In effect, perceptron time advances one time slice at a time, where the slice is of  $\Delta t$  thickness. Thus all physical phenomena occur in minute granular sequences.

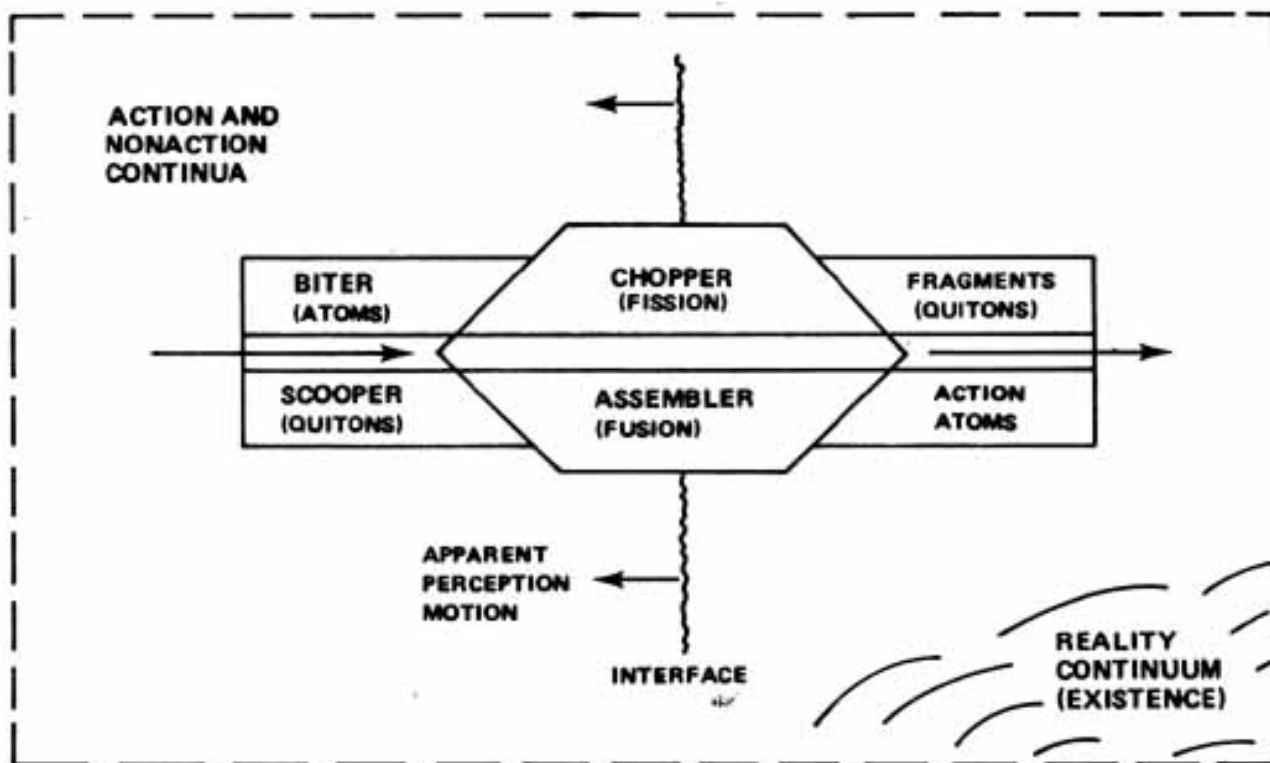


Fig. 2. The Fundamental Perceptron Switch

The existence of a negative time flow can be postulated by a simple symmetry analogy, but this postulated negative time, by definition, cannot be a perceptron output. We use the term "reflection" to denote a postulated operation in negative time<sup>1</sup> symmetrical to perception which operates only in positive time. Reflection is essential to the explanation of electric charge and charge effects,<sup>2</sup> but these will not be discussed here. Figures 3, 4, and 5 summarize the concepts of reflection, perception, and positive and negative time.

We now introduce the concept of absolute value of a dimensional molecule.<sup>3</sup> To illustrate, if we know that  $F = Ma$ , we will state that

$$|F| \equiv |Ma| \equiv |M| \times |a| = M |a| , \quad (15)$$

where the last expression is true because of the nondivisibility of the unit  $\Delta L$  and

<sup>1</sup>Modern theorists such as Feynman, Wheeler, and Dirac of necessity incorporate negative time operation into their theories involving action-at-a-distance.

<sup>2</sup>The quiton/perceptron theory can and does explain what "charge" is, why like charges repel and unlike charges attract, etc. It predicts the force of attraction or repulsion to be proportional to  $Q_1 Q_2 / R^2$ .

<sup>3</sup>Although perceptron output bits may vary in magnitude from operation to operation,

<sup>3</sup>Although perceptron output bits may vary in magnitude from operation to operation, they are of absolutely fixed size in any one operation or between any two consecutive operations. So for one operation or any two consecutive operations, a dimensional molecule is merely a product and division of certain-sized bits, and is itself of one fixed magnitude. Any other dimensional quantity of equal absolute value is therefore of the same size for that operation. At this level, differentiation is simple bit division and integration is simple bit multiplication.

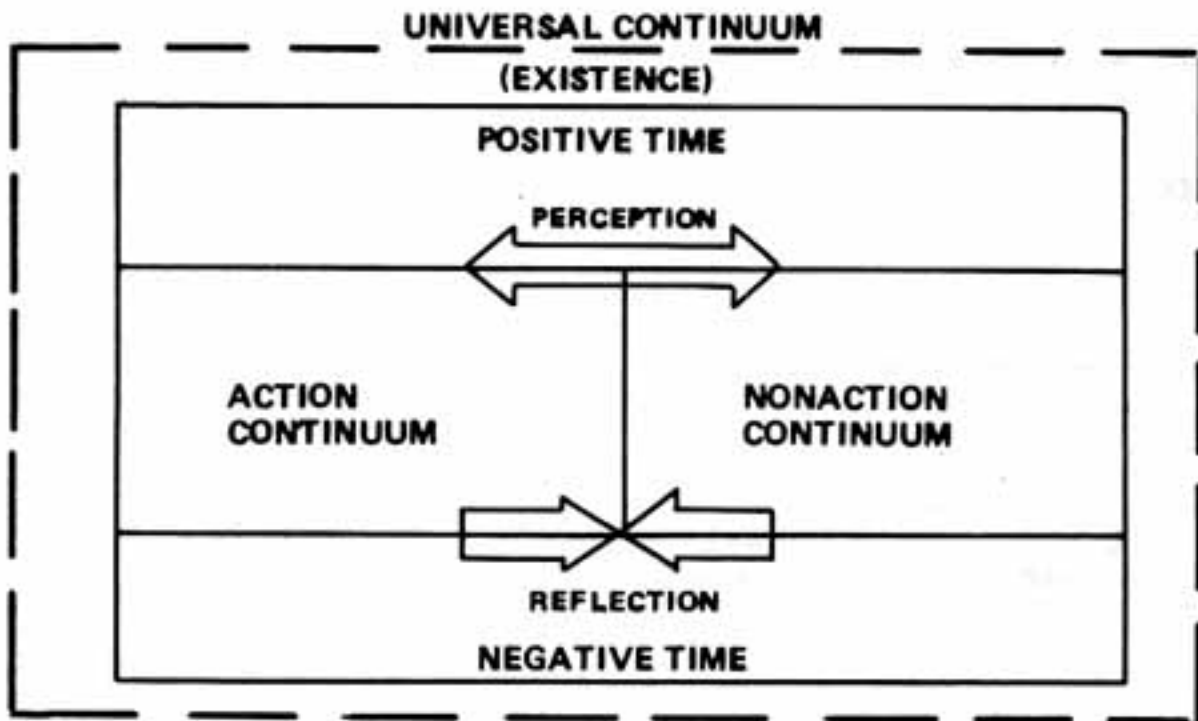


Fig. 3. The Continua (Complete Model)

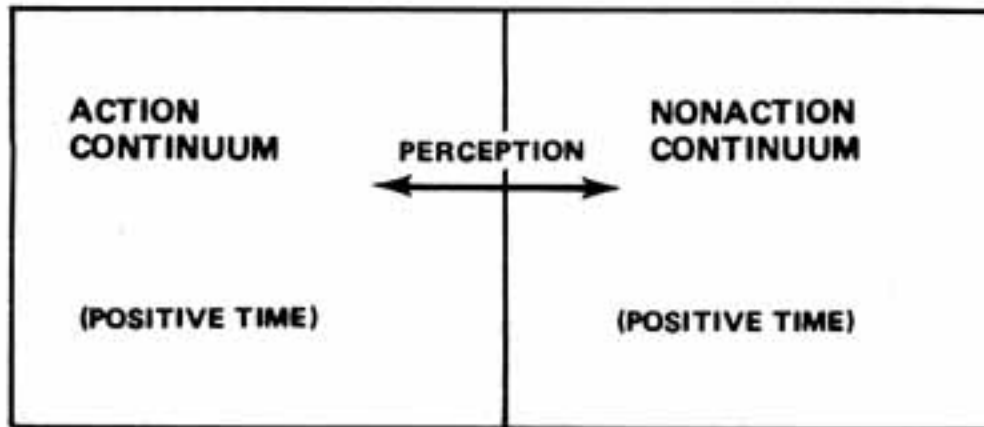


Fig. 4. The Positive Time Continua -- Model in Which Perception Acts

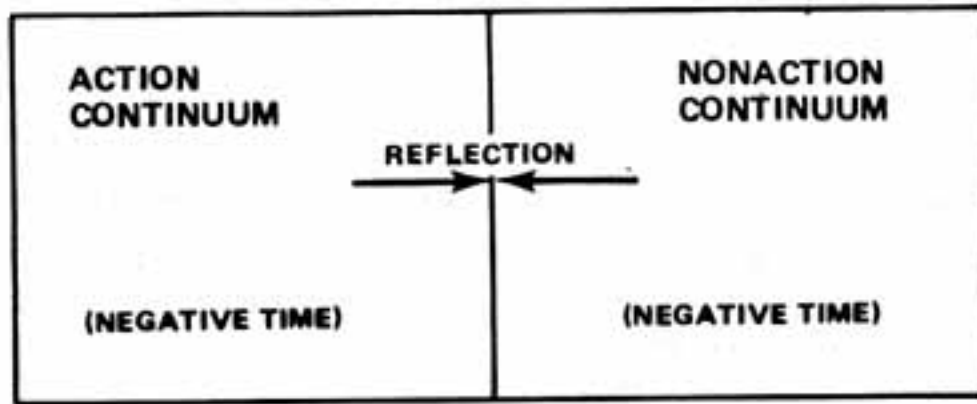


Fig. 5. The Negative Time Continua --  
Model in Which Perception Does Not Act

$\Delta t$  quanta outputted by one perceptron operation. The absolute value signs must be added to any dimensional molecule which can take on either positive or negative values. Dimensionally,

$$M_0 = |E| , \quad (16)$$

where  $M_0$  is rest mass and requires no absolute value sign since a quantity of rest mass is only positive. Actually, since perceptron operation only outputs quanta, then the perceptron outputs  $\Delta E$  and  $\Delta M_0$ , or

$$\Delta M_0 = |\Delta E| , \quad (17)$$

and repetition rate allows perception of  $M_0$  as a positive quantity. Then,

$$\frac{\Delta A}{\Delta M} \rightarrow \frac{\Delta(L^2)}{\Delta t} . \quad (18)$$

The perceptron expression of the right-hand side of (18) will be<sup>1</sup>

$$\frac{\Delta(L^2)}{\Delta t} \rightarrow \frac{\Delta L \Delta L}{\Delta t} \rightarrow \Delta L (V) , \quad (19)$$

and then we have

$$\Delta E \Delta t (V/V) \rightarrow \frac{\Delta E (V \Delta t)}{V} \rightarrow \Delta P (\Delta t) (\Delta L / \Delta t) \rightarrow \Delta P \Delta L , \quad (20)$$

which must be another statement of the minimum condition of the Heisenberg uncertainty principle, or

$$k = \Delta P \Delta L . \quad (21)$$

It follows that

$$\Delta P \Delta L = nk, \quad n = \pm 0, \pm 1, \pm 2, \dots \quad (21a)$$

To consider why constant velocity yields special relativity, from  $E = ML^2/T^2$  and Eq. (16), we can write

$$M = \left| \frac{ML^2}{T^2} \right| = M \left| \frac{L^2}{T^2} \right| . \quad (22)$$

Dividing out the  $M$  gives

$$1 = \left| \frac{L^2}{T^2} \right| = \left| \frac{L}{T} \right| = \frac{|L|}{|T|} = |V| . \quad (23)$$

---

<sup>1</sup>Obviously  $\Delta(L^2) = 2L\Delta L + (\Delta L)^2$ , but the units of  $2L\Delta L$  are  $\Delta L\Delta L$ .



So velocity is a dimensionless quantity in the absolute dimensional sense, i. e., in the perceptron operational sense, and "the laws of physics apply equally well for all observers as long as they are moving with constant velocities" (Einstein's postulate). When the perceptron process is applied to a system of objects whose relative velocities are constant, the inputs to perception always differ by a constant value and the differentiated outputs of perception do not differ, i. e., the differential of  $f(x) + C_1$  is identical to the differential of  $f(x)$ .<sup>1</sup>

Observation is related to perception as shown in Fig. 6. An observer observes only perceptron outputs<sup>2</sup> -- never ultimate reality -- from his sensory apparatuses.

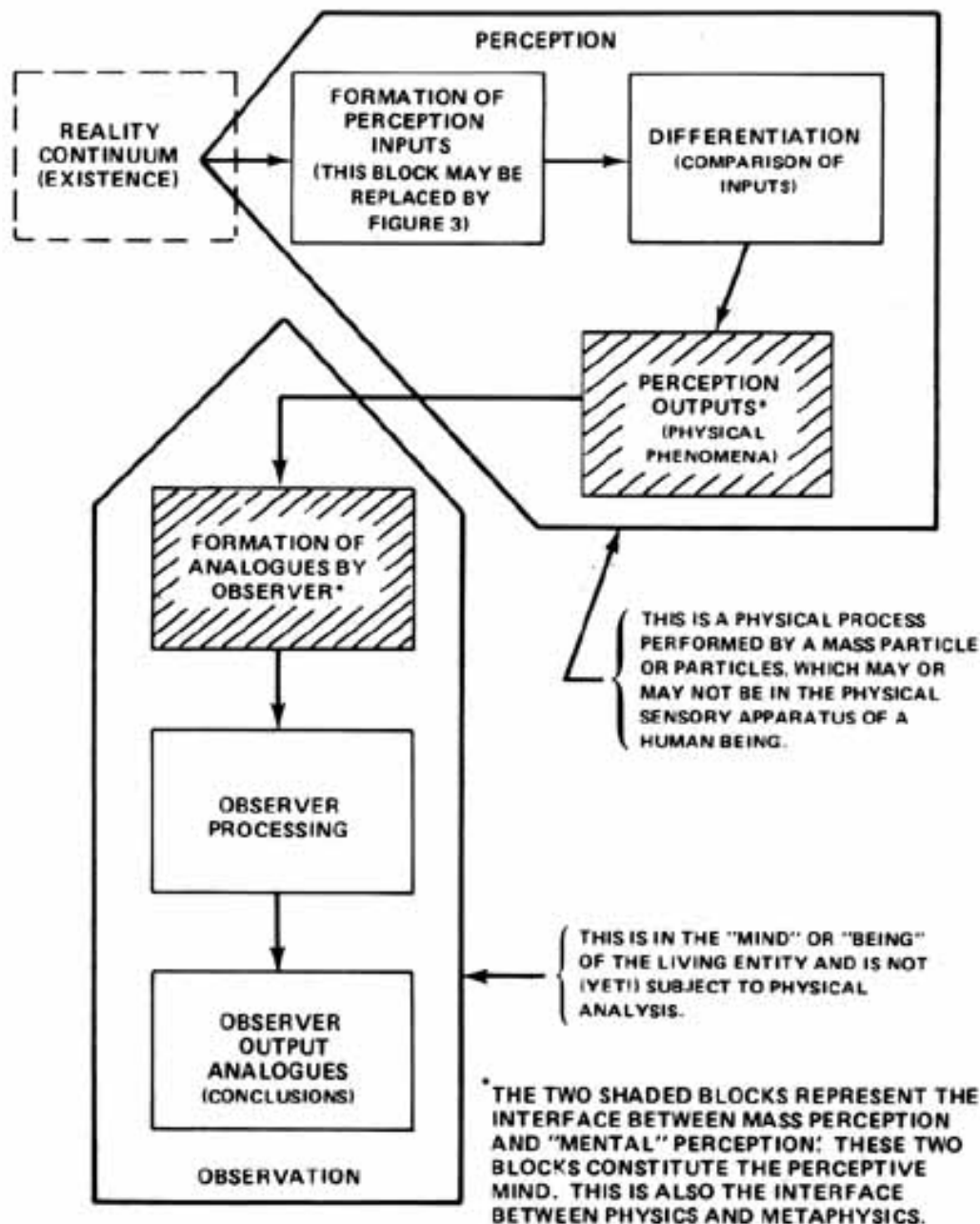


Fig. 6. Overall Relationships

<sup>1</sup>Einstein's treatments of simultaneity and special relativity may be regarded as

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<sup>1</sup>Einstein's treatments of simultaneity and special relativity may be regarded as statements that one can determine a length (measure a  $\Delta L$ ) only by  $\Delta L \equiv c\Delta t$ , and one can determine (measure) a  $\Delta t$  only by  $\Delta t \equiv \Delta L/c$  in the static case.

<sup>2</sup>The process of observation actually consists of both perception and realization.

### III. MASS AND SPACE

The nonaction continuum may be further visualized as a sea or gas of small, unperceivable particles, i. e., of quitons and aggregates of quitons which are less than  $k$  in magnitude. Since mass is a perceived quantity and a quiton cannot be perceived, a quiton or aggregate of less than  $k$  magnitude has zero mass.

Since fission and fusion both constitute perceptron switching, we may explain mass by visualizing a changing pile of quiton bundles, each of  $k$  size, in which the total rate of switching activity is what we call the "mass"<sup>1</sup> of the pile. Thus the mass is equal to the sum of the absolute values of the fission and fusion activities:

$$M \equiv \left| \frac{\Delta A_i}{\Delta t} \right| + \left| \frac{\Delta A_o}{\Delta t} \right| \approx |\dot{n}_i + \dot{n}_o| k, \quad (24)$$

or

$$M \approx |\dot{n}_i + \dot{n}_o| \text{ sw/sec}, \quad (25)$$

where<sup>2</sup>

$\Delta t$  = perceptron operation time (one operation)

$M$  = perceived mass of the pile

$\Delta A_i$  = action created from fusing quitons into action atoms

$\Delta A_o$  = action lost from fissioning action atoms into quitons

$\dot{n}_i$  = number of  $k$ -sized bundles per second fused into atoms

$\dot{n}_o$  = number of atoms per second fissioned into quitons

sw/sec = one perceptron operation per second.

<sup>1</sup>If  $\Delta E$  is time rate of change of action, and if the absolute dimensional value of rest mass and rest mass energy are the same, then mass must also be a time rate of change of action. One kilogram mass equals  $17.053 \times 10^{50}$  sw/sec.

<sup>2</sup>The switch concept is necessary to explain charge and charge effects. The switching occurs between the positive (perception outputted) and negative (reflection outputted) time streams. Three types of switches exist, two of which are charge switches and all of which are mass switches. Switching may also be regarded as change of  $\Delta t$  into  $\Delta L$ . For a mass switch, the limiting value of the conversion parameter  $b$  in  $(\Delta L = b\Delta t)$  is  $c$ , the speed of light. However, the

regarded as change of  $\Delta t$  into  $\Delta L$ . For a mass switch, the limiting value of the conversion parameter  $b$  in ( $\Delta L = b\Delta t$ ) is  $c$ , the speed of light. However, the concept of switching can be expanded;  $b < c$  implies mass switching;  $b = c$  implies quions moving (maximum switching limit for mass switching);  $b > c$  implies DeBroglie waves moving, which are not switching in the normal sense at all. Technically, the condition  $b < c$  applies to Eqs. (24) and (25).

The use of the mass definition equation can be illustrated by a simple example. First,

$$k \equiv h/2 = 0.527 \times 10^{-34} \text{ joule-sec} \quad (26)$$

$$1 \text{ kg mass} = 8.987 \times 10^{16} \text{ joules} , \quad (27)$$

so

$$1 \text{ kg mass} = \frac{8.987 \times 10^{16} \text{ joules}}{0.527 \times 10^{-34} \text{ joule-sec/switch}} \quad (28)$$

$$1 \text{ kg mass} = 17.053 \times 10^{50} \text{ switches/sec} . \quad (29)$$

For a mass that does not accelerate, switches must occur in couplets. This would require, for example, that angular momentum be quantized in quanta of  $2k$  magnitude, since two switches would process two action atoms -- one in and one out of the mass action pile. Since

$$2k = h/2\pi , \quad (30)$$

then angular momentum should be quantized in  $h/2\pi$  quanta, which indeed it is: from the Bohr theory of the hydrogen atom,<sup>1</sup>

$$mvr = \frac{nh}{2\pi} , \quad n = 0, 1, 2, \dots , \quad (31)$$

and the change permitted is thus

$$\Delta(mvr) = \frac{nh}{2\pi} , \quad n = 0, \pm 1, \pm 2, \pm 3, \dots \quad (32)$$

What we normally think of as empty space is sometimes described as the absence of mass and energy, existing in time.<sup>2</sup> Empty space can be defined by

$$\frac{\Delta A}{\Delta t} = 0; \quad \frac{\Delta \bar{A}}{\Delta t} = 0 , \quad (33)$$

which merely state that no perceptron output is occurring. Thus empty space exists only as defined by a perceptron and is merely the total absence of perception. While these equations rule out fission and fusion, they do not rule out the static presence of large numbers of quitons and quiton aggregates each of which is less than  $k$  in size (a quiton may be viewed as a quantum of space or a quantum of ether).

<sup>1</sup>Beiser, Concepts of Modern Physics, McGraw Hill, 1963.

<sup>2</sup>Actually there is no time connected with the existence of space; the time is connected only with our perception of change; that is, space is a product of perception, or the nonoperation of perception, and is related to a mass perceptron. Similarly, space itself has no length -- length is relative between two masses. That is why both length and time can change, and why a specific length and a specific time can

space itself has no length -- length is relative between two masses. That is why both length and time can change, and why a specific length and a specific time can be different to different observers.

A massless quiton cannot individually generate any drag resistance against matter in the Newtonian sense. So a mass object moving along at a constant velocity will just push a stream of massless quitons ahead of it. In effect, the mass "bulldozer" is pushing its own medium along with it, and this requires no force.<sup>1</sup> Therefore, empty space (i. e., the zero output condition of one's mass perceptron) is filled with (has added to it) streams and streams of quitons moving ahead of other objects (perceived by one's perceptron) from all over the universe (perceived by one's perceptron). These quiton streams may be regarded as quiton pulses or quiton waves<sup>2</sup> in one's own static-relative quiton pond. The static-relative quiton pond of a mass will be called its "q-space" or "space" (more commonly referred to as the mass's inertial frame of reference).

When impinging on a perceptron's mass, these disturbances are being collected into k-sized quanta and switched into action atoms. The switching produces outputs that reveal the presences of the disturbing masses. The situation for a perceived mass is described in Fig. 7. Note that a fusion pileup is shown in front of the perceived object due to the object's motion, and a fission pileup is shown at the rear (switching is actually distributed throughout). Additional switching is occurring in the pileups and constitutes increase in mass. So one's mass perceptron perceives the moving object's mass as having increased. The relative velocity of the object with respect to one's perceptron determines the additional collection rate of quitons, and hence the additional switching rate, occurring for the object in one's perceptron q-space. The perceived increase in the moving body's mass is a function of the increased collection rate, which is a function of both the initial mass switch size  $M_0$  and the velocity  $V$ , or

$$M = f(V, M_0) . \quad (34)$$

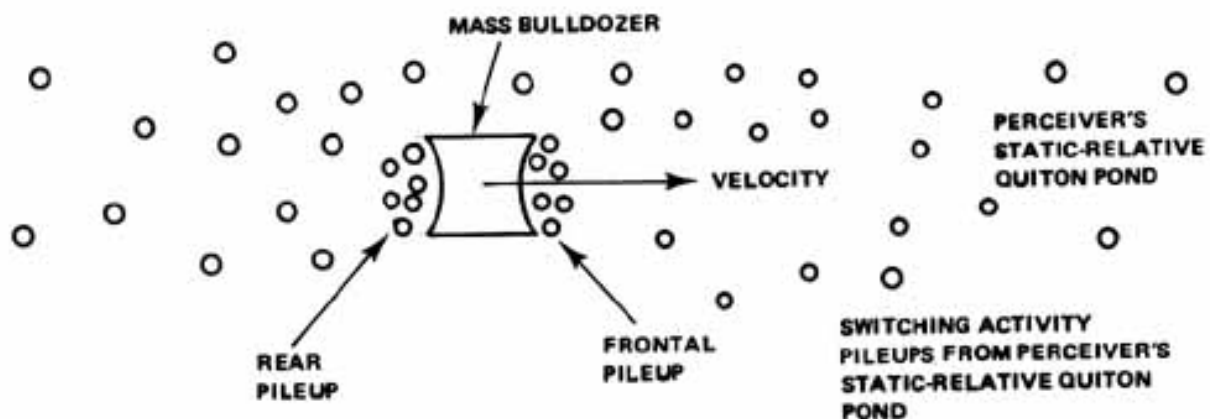


Fig. 7. Increased Perceiver Switching Due to Perceived Velocity

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- <sup>1</sup>More precisely, it requires no resultant (unbalanced) force. Both fission and fusion create forces; however, these forces are opposing, and so when fission rate equals fusion rate the resultant force is zero.
- <sup>2</sup>These pulses or waves are not in themselves perceived, so one can equally well consider them bunches of particles or waves. The difficulty lies with the perceptron mind, not with the disturbances.



If the perceiver shifts "his view" to the object, he would at the same time shift his perceptron to it and so would then see the same sort of effect existing on his vacated mass. The pileup is relative to the perceiver and is occurring in the perceiver's perceptron itself.<sup>1</sup> So material objects do not just move through an ether, they carry their own q-space ethers right along with them.<sup>2</sup> And all they can detect is the disturbances in that q-space that produces switching transfers in and out of the action and nonaction continua.

We now wish to know the standard medium velocity at which wave disturbances move in the q-space. The question is, what has zero mass, is unperceivable, and yet can move through the perceiver's empty space ether<sup>3</sup> at some standard velocity? Photons satisfy all these requirements. Photons themselves cannot be perceived -- only their interactions can; and photons move in free space at the velocity  $c$ , the speed of light. Thus  $c$  is the quiton medium's wave velocity<sup>4</sup> and quiton disturbances move in a q-space at the velocity  $c$ . They move only in a q-space and in nothing else, since movement (velocity) is defined as  $\Delta L/\Delta t$ , and both  $\Delta L$  and  $\Delta t$  exist only to the perceptron that created them. Therefore, velocity of a perceived object is absolutely relative to the perceiver since it is part of the perceiver's mass's perception. At this point, Einstein's postulate that "the speed of light is the same for every observer" can be seen to follow directly from the quiton/perceptron model.

But a difference exists between the speed of light in q-space and the speed of light in a medium. Simply speaking, when light travels in a medium the quiton waves (photons) are perceived to interact with particles (get switched by other switches) continually. In each imposed interaction switching perceived, another  $\Delta t$  occurs in the perceiver's perceptron. Thus more  $\Delta t$ 's occur, and the photon is perceived to take longer in traveling through the medium than through free q-space; that is, the perceiver's perceptron (in which the medium itself exists) creates more time output in the case of light traveling through a perceived medium than light traveling through unperceived free q-space.

<sup>1</sup>This point is emphasized. The mass's mass does not increase as perceived by itself; its mass does increase as seen by the perceiver. This fact alone is sufficient to establish that the increase in mass is subjective, not objective (although these two terms are usually misused). That is what the term "relative" means, i.e., relative to the subject. Note that the perceiver is always the subject. The fact that the effect occurs only to the perceiver should indicate that it is the perceiver's perception process which is causing the effect.

<sup>2</sup>Thus one can have one space moving through another space.

<sup>3</sup>From Einstein's Theory of Relativity by Max Born, p. 224: "Einstein in later years proposed calling empty space equipped with gravitational and electromagnetic fields the 'ether,' whereby, however, this word is not to denote a substance with its traditional attributes. Thus in the 'ether,' there are to be no determinable points, and it is meaningless to speak of motion relative to the 'ether.' Such a use of the word 'ether' is of course quite admissible, and when once it has been sanctioned by usage in this way, probably quite convenient." The use of "ether" here is quite close to Einstein's proposal; however, in our usage it is meaningful to speak of "perceived motion of a perceived object" in the q-space ether of the perceiver. Otherwise, there can be no observation and no observer, which are of course necessary

"perceived motion of a perceived object" in the q-space ether of the perceiver. Otherwise, there can be no observation and no observer, which are of course necessary to Einstein's theory.

<sup>4</sup>Velocity is unperceivable; it is actually the constant of proportionality for the perceptron's direct transposition of  $\Delta t$  into  $\Delta L$ . And  $c$ , the constant velocity of light, represents the limit of the perceptron's ability to do this.

It should be noted, but will not be pursued further here, that electromagnetic waves in space are merely quiton wave disturbances<sup>1</sup> moving in a perceptron's q-space. The energy being transmitted is the "energy equivalence" of the nonaction quiton aggregates that were chopped up from action atoms. When these fissioned aggregates are again collected in some perceptron, then  $\overline{\Delta E}$  is recovered as  $\Delta E$ , or perhaps as  $\Delta M$ .

In passing, we note that hidden in the principle of complementarity is the fact that wave and particle are operationally excluded, i. e., separated by an operation. A wave by definition is operational (dynamic). The most elementary idea involved in the concept of a particle is that it is nonoperational; i. e., it doesn't have to move, or change, or function, or be dynamic to exist. Obviously that which is operational differs from (is separated from) that which is nonoperational, but such separation itself is differentiation which is an operation. Therefore, wave (operation) and particle (nonoperation) are operationally separated. The only "mystery" in complementarity is that one must stop (interfere with) an operational entity to have a nonoperational entity, and one must start (interfere with) a nonoperational entity to have an operational entity. Depending upon the conditions imposed upon it, an entity can be either operational or nonoperational. For example, the operation of superposition must be imposed upon DeBroglie waves before they can constitute a particle. It then follows that the particle's velocity must in fact be the velocity of the superimposed group, i. e., the wave packet's velocity. By the same reasoning it follows that one cannot measure a particle's exact position (which is a static or nonoperational entity) and its exact momentum (which is a moving or operational entity) at the same time. The same is true for the particle's exact time position (nonoperational) and its exact kinetic energy (operational). Thus uncertainty principles, complementarity, and the relationship of DeBroglie wave velocity to wave packet velocity all involve the one fundamental concept that an operational entity is separated from a nonoperational entity by an operation. The changing is separated from the unchanging by a change; i. e., the changing is operationally derived from the unchanging, or perceived reality is derived from unperceived reality.

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<sup>1</sup>Photons are aggregates of quitions; quiton aggregate behavior is particulate. Behavior from the standpoint of individual quitions is wave-like. This explains the dual behavior of light and reconciles its wave and quantum aspects.



## IV. IMPACT ON PHYSICS

### A. MICHELSON-MORLEY EXPERIMENT

The Michelson-Morley experiment was conducted in the Michelson/Morley/earth q-space. The Michelson/Morley/earth perceptron(s) would perceive the speed of light to be the same in all directions, i. e., any fringe shift observed should have been a result of experimental uncertainty only. The experiment did not prove there was no ether; it did prove there was no perceivable ether<sup>1</sup> through which the earth was moving. The results admitted of a static-relative ether if it is unperceived. Perception is a process, and if the process does not occur then perception does not occur. Since by definition the q-space of a perceptron does not cause the perceptron to operate, then the q-space is unperceived by the perceptron.

More careful examination of observation reveals the following facts: A perceived mass has a constant mass when not moving with respect to the perceiver. When it is moving through the space frame or the ether of the perceiver with a constant velocity  $v$ , its perceived mass is again constant but is now perceived to be greater than was its rest mass. From whence came the extra mass?

The extra mass effect is only to the perceiver. The only possible sources for the extra mass in perception are the original rest mass  $M_0$  and the empty space of the perceiver's space-frame (i. e., the interaction of perceived mass with unperceived space). Space does not drag, in the conventional Newtonian sense, against a moving body that is not accelerating. And space is unperceivable; therefore it can be visualized as a massless fluid. Thus the increase in perceived mass (which is a change) must come from the perceived mass's increase in velocity in perceiver space (because velocity is all that was changed), and it must involve the physical operation of the perceiver's physical perceiving mechanism. A perceived mass does exert resistance (drag) called "inertia" whenever it is accelerated in the perceiver's space-frame. This resistance is a force. Perceived force is equal to perceived mass times perceived acceleration through the perceiver's space.<sup>2</sup>

<sup>1</sup>Is not space an unperceivable ether? An extract from Einstein's Theory of Relativity by Max Born, p. 223, states: "If each of two observers who are moving relative to each other can assert with equal right that he is at rest in the ether, there can be no ether. Thus, the extreme development of the ether theory leads to its dissolution as a fundamental concept." The conclusion that there can be no ether does not logically follow. Each observer can assert that he is at rest in an ether (space), and these spaces can be intermoving. That is precisely what a "moving frame of reference" is: one space moving through another. Today we retain the (or more correctly, an) ether concept, but call it "space" or "inertial frame of reference" or "frame." The conclusion should have been that there can be no single "stable ether," but that there can be many.

<sup>2</sup>Newton's law,  $F = ma$ ,\* to date has been used in a half sense, i. e., that the acceleration of a perceived mass through the perceiver's unperceived q-space generates force. If this is true, and relativity holds, then the acceleration of any other unperceived q-space, through a perceived mass, also generates force; through one perceived mass in a perceiver's q-space, the q-spaces of all other perceived accelerating masses are accelerating and thereby generating forces on it. By this "other half" of Newton's law and by relativity, Mach's principle (that inertia of a mass is derived from the

accelerating and thereby generating forces on it. By this other half of Newton's law and by relativity, Mach's principle (that inertia of a mass is derived from the other masses of the universe) can be shown to be true. Although not collated and developed as such, it is possible to derive the postulates of both special (Continued)

This equation states that a perceived accelerating mass must react with the perceiver's q-space, and in fact this interaction may be taken as the basic mechanism that creates force itself. Again the perceiver's physical perception mechanism is the causative agent.

A quite logical conclusion at this point is that the perceiving mechanism perceives (produces) additional perceived mass from the interaction of perceived rest mass with perceived mass-motion (velocity) through its unperceived space.<sup>1</sup> Also, the perceiving mechanism produces perceived inertial drag from the interaction of perceived mass with the mass's perceived acceleration through its unperceived space.

The concept of "ether" should not be rejected while the concept of "space" is retained, since the latter is actually an unperceivable ether. Rather, the concepts of mass, perception, and ether-space should be tailored to fit the perceived phenomena. Quiton/perceptron theory (perception theory) is a deliberate transfer function model specifically tailored to fit these criteria.

## B. GRAVITATIONAL ATTRACTION

Newton's law of universal gravitation can be generated, in both effect and form, from quiton/perceptron theory.

A perceptron's q-space is filled with streams and streams of quiton disturbances moving ahead of its perceived moving objects from all over its universe. Thus there exists a flux of quitons at any point in its space, and this flux is isotropic to the first approximation: because of the vast interstellar distances between disturbing masses, the flux gradient in the relatively local neighborhood of any perceiver point is essentially zero. The quiton disturbance flux can be represented as shown in Fig. 8. A quiton flux stream switching pressure  $P_1$  is exerted on  $M_1$  and a switching pressure  $P_2$  is exerted on mass  $M_2$ . In any one flux stream line in this shadowed zone, the pressure against either of the two bodies is reduced in proportion to the amount of switching flux subtracted from that flux line by the other body. The total reduction of switch pressure in the shadowed zone is therefore proportional to the product of the two masses  $M_1$  and  $M_2$ , considering the effects to be mutually independent.

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(Footnote 2 continued from preceding page) and general relativity from quiton/perceptron theory, and the steps essential to that derivation are contained in this paper.

\*[More precisely,  $F = d/dt (mv) = ma + v dm/dt$ . From the second term, increase or decrease in mass of a moving object also produces a force. This second force component may not be too important except in microscopic phenomena, but for fast microscopic changes in mass (e.g., in the nucleus) it could generate significant forces. Also note that the velocities of all other spaces (i.e., velocities of the q-spaces of all other moving objects) in the perceiving mass's universe interact with its perceived mass change rates, according to the second term of Newton's law, relativistic form.]

<sup>1</sup>A disagreement has long existed over whether a "nothing" exists if it cannot be observed. The argument is illogical; e.g., if a photon itself cannot be perceived and only effects (changes) produced by it are perceived, does a photon exist? It

A disagreement has long existed over whether a something exists if it cannot be observed. The argument is illogical; e.g., if a photon itself cannot be perceived and only effects (changes) produced by it are perceived, does a photon exist? It exists, but cannot be perceived to exist, i.e., it exists outside of perception, but does not exist in perception. The same is true of the notion of space.



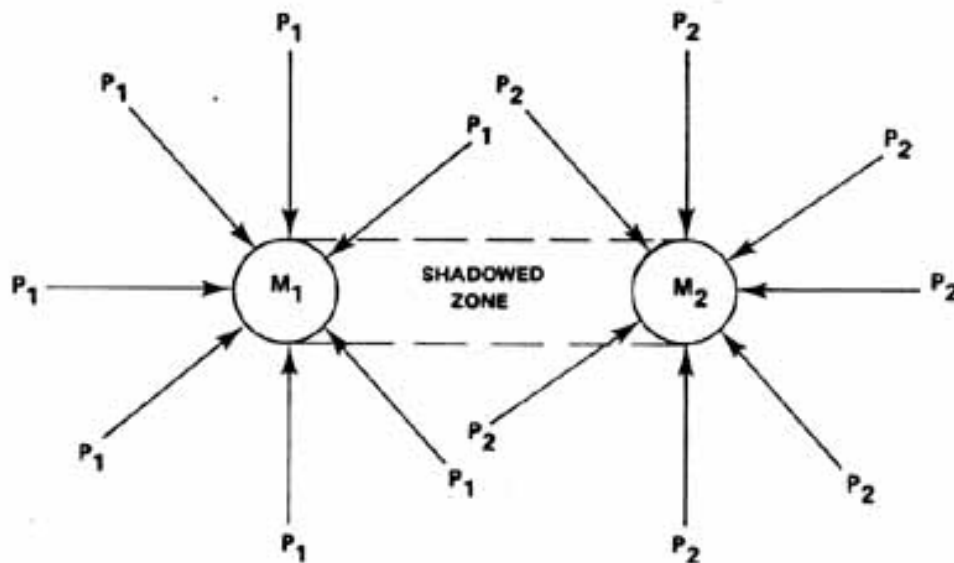


Fig. 8. Gravitational Attraction of Masses

From purely geometrical considerations, a shielding factor is also present due to the solid angle that is shadowed about any mass point. This effect is proportional to  $1/R^2$  by usual solid angle considerations. Putting these two factors<sup>2</sup> together, the attraction of mass should therefore be proportional to  $M_1 M_2 / R^2$ , or

$$F = K \frac{M_1 M_2}{R^2} \quad (35)$$

which is the expression for Newton's universal law of gravitational force, and this force is driving the two masses together.<sup>1</sup> By merely extending the basic statement by superposition of the effects of every perceived mass-pair in the perceptron's universe, one obtains the attraction of mass<sup>2</sup> for the universe.

<sup>1</sup>It is not accidental that electric, magnetic, and gravitational field forces all obey "inverse square of the distance" laws, since these forces are derived from analogous switching operations.

<sup>2</sup>Attraction of mass implies an effect derivable from the presence of mass only. Mass is a switching rate. Therefore attraction of mass must be derived from switching only. Now a massless fluid generates no drag against a constant velocity mass, but switching is a negative quiton acceleration which does generate force. So switching generates drag, but constant velocity does not. This accounts for the error long made in considering the "mass shadowing" explanation of gravitational attraction to suffer from a serious defect of implied retardation force due to velocity through an ether-flux (see, for example, the Feynman Lectures on Physics, Vol. 1, p. 7-9). Velocity of an ether flux through a body merely affects the mass of the body; it does not generate force. Acceleration of an ether flux through a body generates a resultant force on that body. In Feynman's example of an orbital body, let us assume perfect circular motion with constant speed. Since the speed of the ether flux is always constant, the mass is always constant. Since the component of acceleration tangential to the circle is zero, there is no force generated tangentially to the orbit. But since there is a constant radially outward acceleration of flux through the orbital body, then there is a constant radial force outwards that is generated, and this force is called the "centrifugal force," i.e., the "center-fleeing" force.

body, then there is a constant radial force outwards that is generated, and this force is called the "centrifugal force," i.e., the "center-fleeing" force.

It should be noted that for extremely small masses at extremely close distances, or for extremely short times, turbulence and interference effects can form in the shadowed zone of Fig. 8 and superposition may no longer hold.

### C. NEWTON'S THIRD LAW OF MOTION

One of the recognized ways of stating Newton's third law of motion is: "To every action force there is an opposite and equal reaction force." This law follows from quiton/perceptron theory, as can be shown by examining two colliding bodies. It should be stressed that these two bodies, and all changes related to them, exist as changes in the output of the perceiver's perceptron. It must always be borne in mind that these changes, or physical phenomena, exist as outputs of the perceiver's mass perceptron.<sup>1,2</sup>

Figure 9 shows perceived bodies  $M_1$  and  $M_2$  in constant velocity motion just before collision. A deliberate choice was made of a case where the momenta of the two bodies were not equal, so that the initial switching rates for the two masses were different. In the example,  $M_1 V_1 > M_2 V_2$ . The mass switching drag of each body is again represented by small circles. Each body has the same size roll in front as in the rear, so its switch pressure forces are balanced. Figure 10 shows the collision.

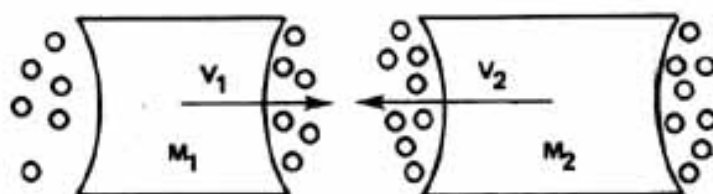


Fig. 9. Two Bodies Before Collision

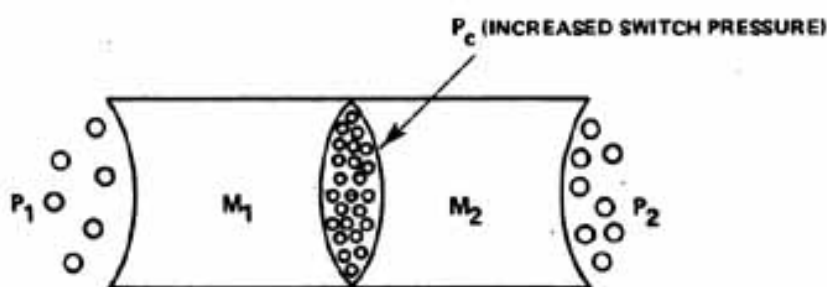


Fig. 10. Two Bodies at Moment of Collision

<sup>1</sup>We consider the question: "If a tree falls in a forest and there is no ear to hear it, is there a sound created?" A tree is a perceived tree, a forest is a perceived forest, and a fall is a perceived change. Their presence or existence implies a perceiver and perception; thus they imply that a "sound" change would be perceived, since they imply a perceiver to perceive it. If, however, by "no ear to hear it" we mean "no perceiver present at all," then the question as posed contains a self-contradiction: with no perceiver, there can be no perceived tree, perceived forest, perceived fall, or perceived sound.

<sup>2</sup>The manner of searching for quiton/perceptron causal explanation of a physical

or perceived sound.

<sup>2</sup>The manner of searching for quiton/perceptron causal explanation of a physical phenomenon is to ask, "What would the perceptron have to do to generate the phenomenon?".

There is an almost instantaneous switch pressure increase in the contact zone between the colliding bodies, and consequently there is a switch pressure differential across each body as shown in Fig. 11.

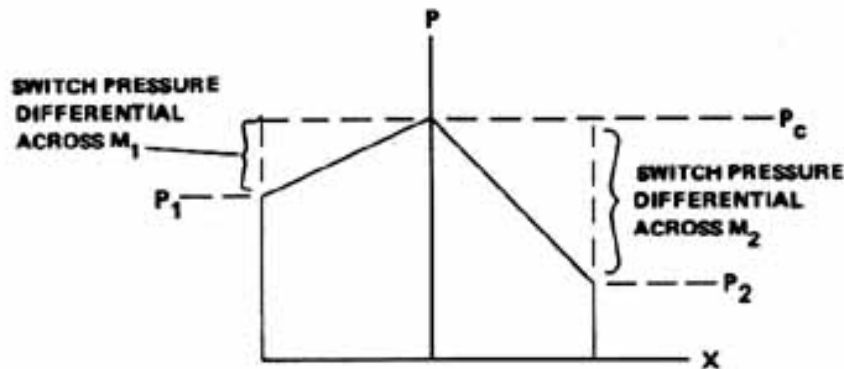


Fig. 11. Switch Pressure Relationships at Collision

In the figure, the contact pressure  $P_c$  is exerted against each body, so that the pressure forces on the two bodies act in opposite directions. But for any two colliding bodies, the contact areas, one against the other, are the same. This common contact area will be called  $A_c$ . Since  $P \equiv F/A$ , then

$$|F_1| = |F_2| = P_c A_c . \quad (36)$$

But since the pressure forces on the two bodies are being exerted in opposite directions, then

$$\vec{F}_1 = -\vec{F}_2 , \quad (37)$$

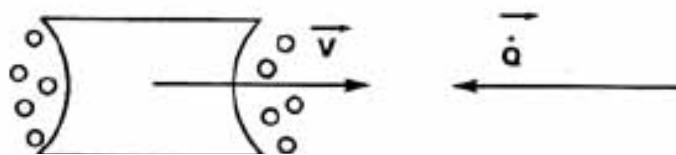
which is Newton's third law of motion.

#### D. NEWTON'S SECOND LAW OF MOTION

Neglecting constants of proportionality, Newton's second law of motion may be stated in the most general sense as

$$F = \frac{d(mv)}{dt} . \quad (38)$$

The first step in deriving this law is to examine a point mass which is perceived moving with velocity  $\vec{V}$ , as shown in *figure 12*.





**Fig. 12. Moving Point Mass**

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An increased rate of quiton switching activity exists along the axis containing the velocity vector  $\vec{V}$ . We will call this increased quiton activity a vectorial "current"  $\vec{Q}$ , and define its direction as contrary to the velocity vector. The mass is perceived to be moving against the current vector, and

$$\vec{Q} \propto -\vec{V} . \quad (39)$$

When the current  $\vec{Q}$  is steady, i. e., when

$$\vec{Q}_{\text{in}} = \vec{Q}_{\text{out}} , \quad (40)$$

then the switching activity, and hence the mass and the energy, are constant.

Therefore, from  $v = \pm\sqrt{2E/m}$ , the velocity remains constant.

If  $\vec{Q}_{\text{out}}$  suddenly increases, then

$$\vec{Q}_{\text{in}} < \vec{Q}_{\text{out}} , \quad (41)$$

which can be represented as in Fig. 13.



Fig. 13. Difference in Quiton Current

From Eq. (39),

$$\vec{Q} = -k_1 \vec{V} . \quad (42)$$

At any time in a quiton current, the switch pressure force exerted against the mass can be represented as

$$F = P_c A_c , \quad (43)$$

where  $P_c$  is the switch pressure and  $A_c$  is the area of contact. However, since the area of contact  $A_c$ , or the drag area, is the mass switch rate itself, then (neglecting constraints of proportionality)

$$A \sim M' \quad (44)$$

$$A_c \propto M' , \quad (44)$$

where  $M'$  is the switch rate at the point of switch pressure application. We will next examine the switch pressure forces before and after one perceptron operation



(i. e., across the smallest possible time interval  $\Delta t$  used by the perceptron itself in perceiving a change). When there is any difference in the pressure forces against the body front and body rear, this difference is the resultant force  $\vec{R}$ , or

$$\vec{R} = [(P_c A_c)_{in} - (P_c A_c)_{out}] \vec{q} , \quad (45)$$

where  $\vec{q}$  is a unit vector whose direction is given by the direction of  $\vec{Q}_{in} - \vec{Q}_{out}$ .

Now, from Eq. (44),

$$\vec{R} = [(M'P_c)_{in} - (M'P_c)_{out}] \vec{q} . \quad (46)$$

Since  $P_c \propto \dot{Q}$  and  $\vec{Q} \propto (-\vec{V})$ , then (neglecting constants of proportionality)

$$\vec{R} = - [(M'\dot{\vec{Q}})_{in} - (M'\dot{\vec{Q}})_{out}] , \quad (47)$$

which from Eq. (39) gives

$$\vec{R} = (M'\vec{V})_{in} - (M'\vec{V})_{out} \quad (48)$$

or

$$\vec{R} = K_4 \Delta(M'\vec{V}) . \quad (49)$$

However, this has happened in the smallest possible time  $\Delta t$ , and since by definition

$$\Delta(M'\vec{V})_{\min \Delta t} = (\dot{M'\vec{V}}) , \quad (50)$$

then

$$\vec{R} = k_4 (\dot{M'\vec{V}}) = k_4 \frac{d}{dt} (M'\vec{V}) , \quad (51)$$

which is Newton's second law of motion, relativistic form. Acceleration of a body is caused by a difference in mass switch rate (i. e., a switch rate gradient)<sup>1</sup> induced across it by transfer of momentum from another moving body or by induction from a field such as an electrostatic field or a magnetic field.

## E. NEWTON'S FIRST LAW OF MOTION

Newton's first law, that "a body at rest or in uniform motion will remain at rest or in uniform motion unless some external force is applied to it," can be derived from the same type of considerations used to develop the second law. Obviously, if

$$\vec{Q} = 0 , \quad (52)$$

<sup>1</sup>Switching can be thought of as transfer of  $\Delta t$  into  $\Delta L$ . An increased switch rate represents an increased rate of transfer resulting in a higher value for the ratio

<sup>1</sup>Switching can be thought of as transfer of  $\Delta t$  into  $\Delta L$ . An increased switch rate represents an increased rate of transfer resulting in a higher value for the ratio of  $\Delta L$  to  $\Delta t$  being outputted. Since the ratio  $\Delta L/\Delta t$  is defined as  $v$ , an increase in this ratio increases the velocity, and thus acceleration occurs.

then

$$\vec{R} = 0 \quad (53)$$

and

$$\vec{a} = 0 \quad , \quad (54)$$

in which case the body at rest will not move and the body in uniform motion will remain so, by the definition of acceleration. Every perceptron repetition will output the identical value for V as the preceeding repetition, and that is why the first law holds.

#### F. IDENTITY OF LENGTH AND TIME

From  $E = Mc^2$ , we have

$$c^2 = E/M = 9 \times 10^{16} \text{ joules/kg} \quad (55)$$

$$c^2 \Leftrightarrow 9 \times 10^{16} \text{ joules/kg} \times 1/17.053 \text{ kg sec/sw} \quad (56)$$

$$c^2 \Leftrightarrow 0.527 \times 10^{-34} \text{ joule-sec/sw} \quad (57)$$

$$c^2 \Leftrightarrow k/\text{mass switch} \quad . \quad (58)$$

Thus

$$c^2 = (3 \times 10^8)^2 \text{ m}^2/\text{sec}^2 \Leftrightarrow \frac{k}{\text{mass switch}} = \text{one sw opn} \quad (59)$$

$$\text{one sw opn} \Rightarrow (3 \times 10^8)^2 \text{ m}^2/\text{sec}^2 \quad (60)$$

$$\Rightarrow 3 \times 10^8 \text{ m/sec} \quad (61)$$

$$\Rightarrow 1 \text{ sec} = 3 \times 10^8 \text{ meters} \quad . \quad (62)$$

Length and time are thus synonymous,<sup>1</sup> and c is the constant of proportionality (more precisely, the identical ratio for transposing  $\Delta t$  into  $\Delta L$  will be maintained for each perceptron operation). Therefore, a perceptron actually outputs only one thing which may be taken to be either  $\Delta t$  or  $\Delta L$  (it actually outputs only change

<sup>1</sup>By "synonymous" we mean that  $\Delta t$  and  $\Delta L$  are intertransposable by perception operation. The term c is the velocity (rate of change) of switching itself, i.e., the speed at which quitions themselves can move, since quitions are being switched by mass. Therefore c ought indeed to be the wave velocity at which quitions move, and thus represents the maximum  $\Delta L$  obtainable from  $\Delta t$  by mass in normal switching. The possibility exists that abnormal (turbulent) switching can deviate from this limitation. Thus "time warping," "time travel," "hyperspace travel," and the interplanetary drive may indeed

that abnormal (turbulent) switching can deviate from this limitation. Thus "time warping," "time travel," "hyperspace travel," and the interplanetary drive may indeed be possible. Since at least one of these effects of turbulence in switching (that of DeBroglie wave velocity exceeding the speed of light) is theoretically accepted, the problem of turbulent switching should be well worth the theorist's attention and effort.

itself, which is perceived and thought of as  $\Delta L$  and  $\Delta t$ ). All other dimensions, quantities, and dimensional molecules are but bit division or bit multiplication. This seems to be consistent with some of the latest conclusions from general relativity theory.

In passing we note that there is no separation without relation, and there is no relation without separation. Therefore

$$\text{relation} \Leftrightarrow \text{separation.} \quad (63)$$

Also, there is no operation without separation, and there is no separation without operation. Therefore

$$\text{operation} \Leftrightarrow \text{separation.} \quad (64)$$

It follows that

$$\text{operation} \Leftrightarrow \text{separation} \Leftrightarrow \text{relation.} \quad (65)$$

We note a difference between free space and a Cartesian space (inertial reference frame). In a Cartesian space or inertial reference frame a definite length is considered to have been established for each and every point in that frame. But such a definite length to each point is rigorously operational by statement (65) above, i. e., such a length is defined by an operation. Specifically, it is defined by the operation of a mass perceptron (or an understood mass perceptron) at the origin of the frame. Such a frame is linear if the identical type of perceptron operation has defined the length to each point. If the type of defining operation varies, then the frame so defined is nonlinear; i. e., its space is said to be curved or distorted.

In one perceptron, its length defining operation and its mass defining operation can interfere or react one with the other. This type of interference or interaction is the direct interaction of frame space (length) with mass and it is the fundamental generating mechanism of force. All forces are so generated (see again the inset footnote on p. 17). And in fact a perceived moving force does work in the direction of its perceived movement rather than in the force's perceived direction precisely because of the moving operational length's interaction (interference) with the operationally generated force. This interference interaction is between operations in the same perceptron and generates what is called work.



## V. ELEMENTARY PHILOSOPHICAL IMPLICATIONS

Every scientific treatise is filled with forms of the words "one" and "be," yet none attempt to define these metaphysical terms. Ontologists and metaphysicians have uncovered many problems connected with these two words, but no real solutions. In addition, the historical preoccupation of metaphysics with dogmatic religious beliefs contributed strongly to its disfavor, since scientists were required to exert considerable effort to establish the scientific (observational) method as a legitimate criterion for the judgment of physical truth. Consequently, both science and philosophy today are constructed on quite undefined foundations, primarily because of the failure to recognize the relationship of perception operation to reality, which recognition is a prerequisite to the synthesis of physics and metaphysics. One therefore must comprehend the concepts of be (exist),<sup>1</sup> thing (perception), and one (thing) from the viewpoint of the relation between perception and ultimate reality.

### A. EXISTENCE, THING, AND ONE

Existence has been defined here as "what is to be fed into the perceptron's input." In the situation where all operation of the perceptron has ceased, what can be said to exist in the input? First, what exists is a continuum: it has no limit, interface, dimension, time, velocity, change, space, place, or discontinuity since these are all derived from perceptron operations and the perceptron is not operating. What exists is continuity only, with no discontinuity.<sup>2</sup> To comprehend this, we must examine the thought process itself more closely, realizing that "to think" is "to perceive thoughts."

What is a "thing?" Further, what is "one" -- one "thing," one "anything?" A thing is first a perceived thing: it resulted from the output of a perceptron operation, in which one input bite and one output occurred. This output is characterized by the fact that it is one, and the absence of one (i.e., zero) is the absence of output.<sup>3</sup> Figure 14 shows these relationships. The perceptron operation created the separation between the inside and the outside by creating a  $\Delta L$  and a  $\Delta t$ , that is what the delta symbol means. Thus the operation of the perceptron determines the basic nature of one itself, and any one necessarily requires that a perceptron operation has occurred. In fact, the perceptron itself is a result of perceptron operations. Thus indeed all is relative. A perceptron exists and is able to function because it perceives other perceptrons to exist and function. Thus perceptrons are mutually created derivatives of reality

<sup>1</sup>Being is undifferentiated; that is its total definition. It cannot be perceived, since perception differentiates. It is continuity only, without any discontinuity, which is unperceivable. The preoccupation of being with causality (perception) is technically called "inception," the influencing of perception. In Zen philosophy this is technically "attachment to the world of illusion (change);" the literal meaning of "incarnation."

<sup>2</sup>This concept is unperceivable, by the definition of perception, which accounts for its difficulty. To be a "perceived one" implies limit (finiteness); oneness itself, without a bound or limit to make it a one (perceived), cannot be perceived. This is the primary limitation of the human mind (i.e., of perceptive thinking)--being, continuity, and oneness themselves imply absence of perception (differentiation) and are therefore unperceivable.

<sup>3</sup>Thus Boolean algebra describes the most basic operation, and is applicable to the

are therefore unperceivable.

<sup>3</sup>Thus Boolean algebra describes the most basic operation, and is applicable to the "operational" world.

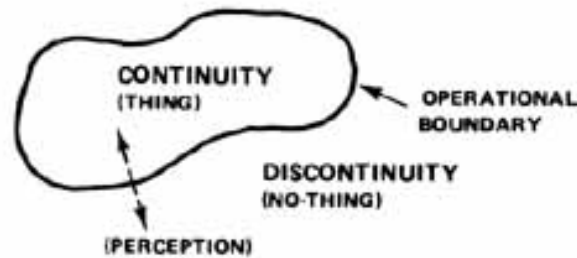


Fig. 14. Nature of One

which drive themselves and each other. Note that the preceding sentence itself is a perception.

So in the fullest sense, Gautama Buddha was indeed correct to state that the world of phenomena (changes) is an "illusion," relative only to itself (i. e., to perceptrons).<sup>1</sup> Einstein, expressing this idea in the language of mathematics, produced the theory of relativity and inaugurated a new physics. Buddha and Einstein spoke in different technical languages, but both expressed the same idea. The only difference is that in science we have assumed that our observations themselves are real and perfect. They are real, but not perfect in that they represent only changes in ultimate reality. Thus observational science alone can never reveal ultimate reality.

Another approach may aid in the comprehension of the nature of one. What is meant by the statement "he is the man?" Reflecting, one realizes that what is meant is that the perceived thing HE is exactly the same perceived thing THE MAN, and this identity exists now (during this one  $\Delta t$  perceptron time slice). There is no part of HE that is discontinuous from THE MAN, or vice versa. The different forms of the verb "be" attempt to express continuity without discontinuity, or unlimited oneness which is a state and not a thing. However, we do use the verb "be"<sup>2</sup> to relate continuity between different time slices. "He is the man" is related in the present time slice; "he was the man" means that HE in the NOW slice is identical to THE MAN in a past slice; etc.

<sup>1</sup>The reader interested in Zen will find complete agreement between this paper and Zen precepts, and will find the paper of some assistance in comprehending the unperceivable (unthinkable) Zen realizations. In Zen, for example, the aim is to comprehend at once the totality of reality, directly, escaping beyond the limiting fetters of perceptive thought. Now if it is actually possible to do this, and if some unusual men have done it, then their enigmatic writings should contain the wisdom of their experience, and should correspond to ultimate reality itself. Since ostensibly their insight is obtained by other-than-logic and other-than-perceptive means, then their statements should appear illogical and unperceivable.\* Thus the "sound of one hand clapping" and other illogical concepts are used in Zen as a meditative means of driving the student beyond logical perception (certainly the sound of one hand clapping cannot be perceived or thought) to realization. But if the Zen experience is actually valid, then reality itself must be pure Zen (i.e., unperceivable), and so it would appear to be. We note that for each component part of all, the opposite part must exist. So all can be regarded as the complete set of all possible opposites or contradictions.

\*(However, this most assuredly does not imply that every statement that is illogical and unperceivable is of value!)

<sup>2</sup>It should be stressed again that being is defined as undifferentiated (unseparated,



is illogical and unperceivable is of value!)

<sup>2</sup>It should be stressed again that being is defined as undifferentiated (unseparated, unperceived). Being is simply continuity without discontinuity.

## B. REALITY, ULTIMATE REALITY, BEING, AND ULTIMATE BEING

Actually one should be quite careful in using these terms. What does one get when one differentiates reality? One gets another reality, but not the primary or ultimate reality. For example, assume that length and time are real. When one time-differentiates length, one obtains velocity, which of course is real also but quite different from either length or time. However, velocity is always operationally related to the two first (assumed) reals length and time, because differentiation is an operation. So what is meant by "ultimate reality" is that state (or essence, or whatever name one prefers) that is not differentiated. Since "being" (continuity with no discontinuity) is defined as "that which is not differentiated," then the ultimate reality is pure being.

But all perceivables are differentials of ultimate reality. When one differentiates being, one gets pieces (differentials) of being which themselves are beings, but they have been perceived (differentiated) from a more primary or higher being. Therefore any being that one perceives has been differentiated (separated) by perception,<sup>1</sup> which explains why human beings, for example, consider themselves separate or individual (one). They are separate only in their individual perceptions. Thus "beings" by its plural nature always implies fragments (differentials) of a higher being (of singular nature). There can be many such integral levels: starting with one function, one can integrate it, then the resulting function can be integrated, etc., as long as we are speaking of definite integrals between two limits. When we reach a state that has no pieces or limits, the process is finished. That state is being in the ultimate sense, i. e., ultimate being.

One perceives these integral levels directly in nature, i. e., in the perceived phenomenological world. Living molecules (tiny beings) of RNA, DNA, etc., integrate together into a cell (a higher level being). Cells then integrate into a still higher being (man, animal, plant), which is the level on which man finds himself. But since man is perceivable and there are more men than one, it follows directly that men are capable of being integrated into a still higher being,<sup>2</sup> and the only word we have at present to describe such an ultimate being is "God." It is not at all accidental, therefore, that the ultimate being cannot be directly perceived by man, since by the definition of perception the ultimate being cannot be perceived by a lower order being such as man (i. e., since perception differentiates, or separates, then only differentials of being, or separate beings, are perceivable).

The avatar Jesus, having no technical concept for the derivative available in the language of the day, used the analogy of the father-son relationship, the son being the derivative of the father in this sense. Thus he referred to himself as the "Son of Man" (the derivative of all mankind or of integrated mankind) and also as the "Son of God" (the derivative of the integral of man). He continually referred to the ultimate being as "Father." It is little wonder that he was not understood then, and has not been understood for almost twenty centuries.

<sup>1</sup>Thus not only are physical objects relative to the perceiver's perception, but so are the perceived beings. Ergo the entire perceived universe, both living and non-living, is related to perception, and in fact perception and creation are abstractly

are the perceived beings. Ergo the entire perceived universe, both living and non-living, is related to perception, and in fact perception and creation are abstractly synonymous.

<sup>2</sup>This statement contains obvious implications to the theory (i.e., to the goal) of evolution.

## VI. CAUSALITY AND ITS MODIFICATION

A little closer look at perception can be obtained by viewing it from the causal standpoint.<sup>1</sup> All that perception really creates is  $\Delta t$  and  $\Delta L$  (which are the same, ignoring constants of proportionality), and the perception we normally think of is point perception, where a point is one switching operation. The perception point may be thought of as following a line path which we will call "lineception" (Fig. 15). Physical phenomena as seen by one perceptron constitute this lineception; or rather, it constitutes the physical phenomena that are perceived or observed by the perceptron. Any point-based perceptron system, such as human perception, will accordingly perceive the universe of physical phenomena as if the perceiving system were a pointer moving along a lineception.<sup>2</sup>

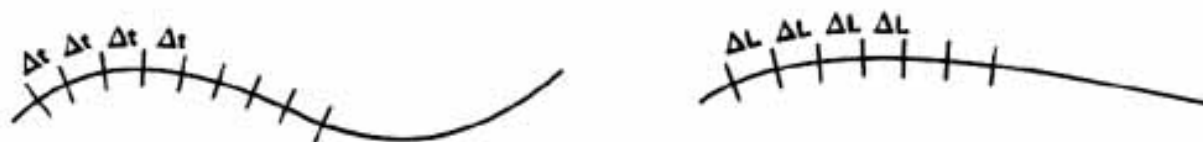


Fig. 15. Lineception (One Connected to One)

For each perception there is a reflection, so there exists (but by definition cannot be perceived) a similar line-path, or "lineflection" as shown in Fig. 16.



Fig. 16. Lineflection (One Connected to One)

<sup>1</sup>Perception is identical to causality itself, i.e., perception can be said to generate causality. The causal view is that causes inputted to a situation operate to produce, or output or create, effects. According to its inputs, the perceptron generates causal outputs. An adequate theory of perception should be able to explain all causal (perceived) phenomena. We might define causality as the set of all causes. Then the answer to the question, "What causes causality itself?" is causality itself; i.e., since it is the set of all causes, causality must contain its own cause. Causality must therefore be closed or circular. The entire causal world must then be purely relative to itself (closed). Closer attention to causal operation yields the following: We perceive something change (in time or in space), then the situation changes so that we perceive new changes emerge (occur later, or separately). Thus the line of perception by its own unperceived operation connects the perceived cause (change) to the perceived effect (change), i.e., perception generates causality. Since perception itself is causal, then causality truly causes itself. This indeed is closed or circular--causality generates perception (perception is causal) and perception generates causality (causality is perceptive). Thus the idea that perception generates causality is completely consistent with our initially assumed definition of causality as the set of all causes.

causes, and perception generates causality (causality is perception). And the idea that perception generates causality is completely consistent with our initially assumed definition of causality as the set of all causes.

<sup>2</sup>A "frame" or "coordinate system" is a point-centered perceptron system centered about the "understood perceptron" at the origin.

The ultimate reality, or existence, contains all, all-at-once (ultimate reality is allness, or oneness). At each operation of the perceptron, the exact amount of  $\Delta t$  and  $\Delta L$ , and their relationship, put out by a perceptron is a function of its input quiton disturbances. A great number, in fact perhaps an infinite number, of different input states are possible, i. e., exist in all, all-at-once (ultimate reality). So an equally large number of output states are possible (exist ultimately),<sup>1</sup> but one particular input condition results in one particular output condition. We can represent the all possible lineceptions existing as "multiception" (Fig. 17). From this figure, a lineception can be seen to be one particular path through multiception. The corresponding multiflection could, of course, be illustrated in similar manner but with negative components.

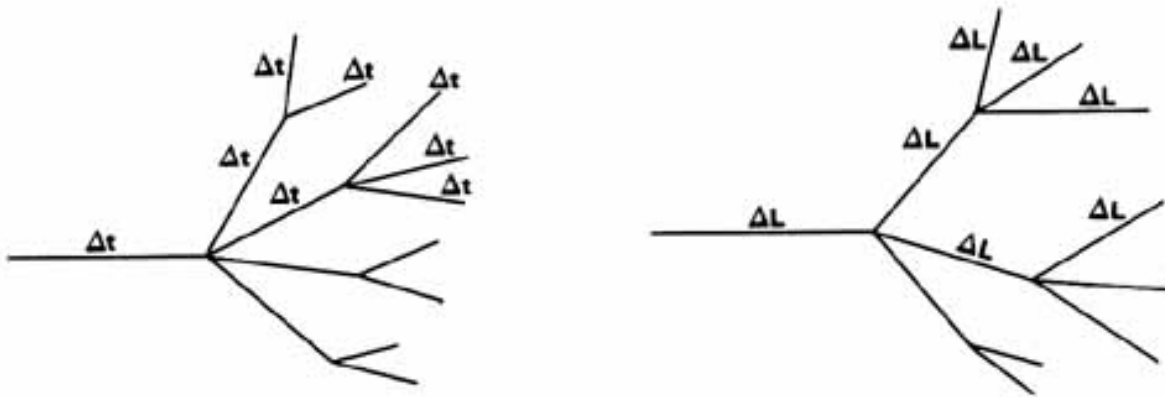


Fig. 17. Multiception (One Connected to Many)

One could immediately apply statistics to the concept along the lines illustrated by Fig. 18.

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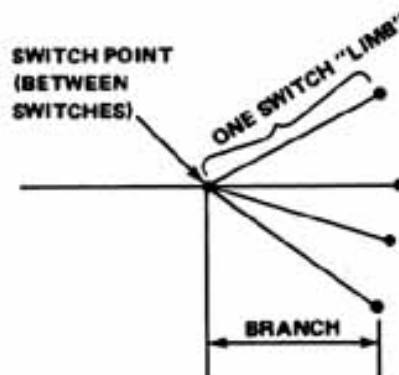


Fig. 18. One Branch

<sup>1</sup>It is stressed that these multiceptions exist, which is not at all the same limited statement as "exist now," but much more comprehensive; e.g., all possible numbers must exist in zero, else, given the number  $A$ , there is no justification for the axiom that  $A + (-A) = 0$ . The "absence of number" means precisely the "absence of all possible

exist in zero, else, given the number  $A$ , there is no justification for the axiom that  $A + (-A) = 0$ . The "absence of number" means precisely the "absence of all possible numbers." Paradoxically, if we think of that absence, we make it present by the act of thinking; i.e., trying to perceive it (absence is not perceivable). This contradiction, of having to make the unthinkable into its opposite so that it is thinkable is both the characteristic and the limitation of perception and perceptive thinking, and has long been an insurmountable obstacle to scientist and philosopher alike.



At each switch point, the perceptron is faced with the branch of possibilities ahead, which all exist in multiception but only one of which exists in one perception, or lineception.<sup>1</sup> A certain set of limbs in the branch must have a perception probability equalling 1, and thus each of the limbs has some finite probability.<sup>2</sup> The input conditions to the perceptron then determine which limb is selected for the next switching operation; and, of course, the input conditions are the results of other related perceptrons' operations (relativity). The statistics will not be pursued further here.

For an absolutely mechanistic world, the entire process is automatic according to quite rigidly fixed rules. A system of perceptrons that behave this way shall be referred to as "mechanically switched." What we call "non-living systems" are mechanically switched systems. But what we call a "living system" is able to arbitrarily select the limb taken, to some extent at least,<sup>3</sup> i. e., the fact that a living system is able to choose its behavior within certain limits, directly implies that it must be able to deflect its lineception from a mechanically switched lineception. The only way it can possibly do this is to influence the switching operation of the perceptron. But since the output of one switching operation is a mechanistic function of the inputs, then the only way a life system can affect the perceptron switching operation is by affecting the input to some extent. How could it possibly do this?

In our crude model, the nonaction continuum is composed of action atom fragments, or quitons. But such non-things are massless by definition (they are not being switched and the absence of switching defines masslessness), and we can think of the nonaction continuum as a massless fluid or ether or empty space, since these terms are all synonymous. All that is implied by these terms is that the fluid is composed of massless elements, which merely means they are not being switched. They are capable of being switched, of course, but switching is not being done. The main point is that force, in the conventional sense, is not required to move a massless fluid, so the input fluid to a perceptron can possibly be interfered with by some nonphysical means requiring zero force. The being portion of a life system can apparently do this to some extent.

Since the switch time of a perceptron is on the order of  $10^{-21}$  seconds, then even an incredibly tiny quiton input variation to a perceptron will result in

<sup>1</sup>It is stressed that all possibilities exist and are real, but do not exist in perception. Perception is the only difference between unperceived reality and perceived reality.

<sup>2</sup>Which leads to an unusual view of "probability." A perceptron operation is already finished when one perception is complete; that is why "the past is always gone, the present has just occurred, and the future is never here." Perceptron operation continually creates the perceptron's universe as it operates, including all changes, time, space, etc.). Thus, at the conclusion of any one perceptron operation, a multitude of lineception steps can exist for the next operation. However, although possibly quite large, the number of next steps available must be finite to be causal (perceivable). It is the process of perception that makes probability finite. Perception is finite; nonperception is infinite.

<sup>3</sup>The only alternative conclusion is that the living system is unable to deliberately



perception is finite; nonperception is infinite.

<sup>3</sup>The only alternative conclusion is that the living system is unable to deliberately modify its behavior and its behavior is purely mechanical. But since this implies that all behavior is absolutely programmed and predictable, which is obviously false, this alternative is not valid and the original conclusion stands.

noticeably altered lineception after one second of such variation. So it is quite reasonable to presume the futility of trying to measure such infinitesimal influence as is brought to bear on one single perceptron operation. However, the total influence can obviously be detected after being accumulated by a very large number of perceptron operations, and for living systems it is. So while we have not proved the mechanism of life-system manipulation of lineception, we have shown a logical progression from an assumed mechanism to a result that is universally verified by countless observations (i. e., all living systems are observed to manipulate causality, which manipulation is, after all, the definition of behavior). Since no other mechanism has been proposed, to the author's knowledge, that would reasonably explain the observed phenomenon of life-system manipulation of lineception, it is logical to accept as true the assumed mechanism -- a life system can exert an incredibly tiny influence on perceptron inputs,<sup>1</sup> i. e., on the ether or on empty space.<sup>2,3</sup>

---

<sup>1</sup>This tiny influence is the basis of the realization process. To comprehend the non-causal, the individual observer usually wrestles diligently with the problem, repeatedly attempting to perceive it causally. In each such attempt, the tiny influence of inception on perceptron inputs is exerted. Over an ensemble of such attempts, the perceptron causal output can be modified, i.e., modulated noncausally to give what are now slightly noncausal perceived outputs. Presence of a required fit or required output pattern in the perceptive mind allows the output to be examined (compared) against the required output, i.e., it allows the selection of the proper noncausally modulated causal transfer function. When the outputs match, one then has a breakthrough or realization which matches the real world pattern but which cannot be directly perceived causally. However, since the mental file of the perceptive mind has now filed the proper transfer function, the individual has assimilated the information and understands it, being able to recall the noncausally modulated causal transfer function at will. Thus in Zen, the ultimate example of realization is described as "enlightenment." Phrases such as "direct perception of reality," "direct experience of ultimate reality," or "direct realization of all-being" are also used in trying to portray the nonperceivable realization. Conventional science hides the entire process behind vague terms, such as "creative thinking," which actually only conceal the fact that we do not know what it is, or how it is accomplished.

Note that such "creative realization" can cover either purely causal or non-causally modulated perception, the difference being merely whether the inputs are incepted in a normal manner comparable to causal phenomena, or in another manner. Realization is derived only from inception. Since the observed phenomena of physics already appear to be noncausal (statistical) in the ultramicroscopic region while ensembles of these yet appear to be causal, then the physicist is already confronted with the necessity of changing causality but at the same time retaining causality. The implications to the observation process itself must be examined, and they remove the dichotomy between physics and metaphysics when pursued.

<sup>2</sup>The Hieronymus effect is an example of this in reverse. It generates an effect on living nervous systems that is not the result of electric, magnetic, or gravitational fields, and is not caused by matter in motion. For that matter, a polygraph has been used to clearly measure a response of plants to human thoughts alone, and such an effect is not presently explainable within the body of physics theory. "Firewalking" is another unexplainable phenomenon from the standpoint of present physics theory as is acupuncture.

<sup>3</sup>All psi phenomena derive from this effect (inception) together with turbulent

is acupuncture.

<sup>3</sup>All psi phenomena derive from this effect (inception) together with turbulent switching. A straightforward theory of psi phenomena (and of such things as fire-walking and acupuncture, for that matter) can conceivably be generated from the quiton/perceptron theory.

Of course the most efficient development of manipulation of lineception (i. e., the widest response) by a life system would necessitate a control system approach; i. e., life system direct manipulation of only a very small control valve or control mechanism, which in turn controls the input to a much larger mechanistic (deterministic) servo amplifier. Systems like this are universally observed in life systems. Thus the great bulk of a life system's manipulation of lineception is servomechanistic: the actual direct influence of life (being) on matter (perceptron switching) is so microscopic as to be immeasurable at its operating level, and only its macroscopic effects become measurable. For that reason the scientist has never been able to isolate the mechanism of life's manipulation of lineception, nor is he likely to be able to do so in the foreseeable future.<sup>1</sup>

Life's manipulation of lineception will be denoted by the term "inception," and can be thought of as a modulation (partial change or additive change) of the lineception carrier. Ordinary physical phenomena are macroscopic ensembles of lineceptions, where the deterministic (mechanistic) law holds absolutely but in a relative manner (ensemble to ensemble) which is fixed cause-and-effect, or causality, from the viewpoint of perception. Since inception is a modulation of lineception, then living behavioral phenomena should be superimposed as envelopes on causal lineceptions, or causal lineception ensembles, and, indeed, they are universally observed to be so superimposed.<sup>2</sup>

Absolute or ultimate reality, however, can be thought of in one respect as all multiceptions and all multiflections, all-at-once, which is timeless (i. e., which is both all-possible-times and zero time simultaneously or identically).<sup>3</sup> Along any one lineception, causality applies; yet since a very large number of changes to that lineception are available in just one multiception branch, then quite a large

<sup>1</sup>This latter statement, of course, is subject to challenge.

<sup>2</sup>Since all matter is, it contains being. Another intriguing possibility exists: that there are two types of inceptive systems, or two magnitude directions that inception takes. The first type would produce inception with difficulty, and its inception would only be apparent at the macroscopic level; the second type would produce inception with ease, its inception would be apparent only at the microscopic level. The first type would correspond to what we call "living systems," while the second would correspond to what we call "inert systems." Living systems' inception would be observable to human senses and human instruments, while inert system's inception would not. A second and remarkable consequence would be, that in the extreme microscopic case, inception would dominate and this scale would appear to be absolutely statistical (individually unpredictable), which apparently is true (i. e., degree of causality represents degree of restraint of inception). This would modify causality (for individual events) at the ultramicroscopic level, but at higher levels causality would still apply due to the karma effect on perceived ensembles. It is significant that at present the universe of matter seems to behave in precisely this fashion. To summarize, perception is causal -- it generates causality. Inception, being non-causal, must be below the perception threshold. Aggregates of inception (noncausal) that equal or exceed the perception threshold become causal (are processed by perception) and generate causal karma.

<sup>3</sup>Since every perceived  $\Delta T$  has an unperceived complement  $-\Delta T$  which exists in reflec-

<sup>3</sup>Since every perceived  $\Delta T$  has an unperceived complement  $-\Delta T$  which exists in reflection, then the sum total of all times in absolute existence, which includes both perception and reflection, equals zero time.



number of inceptions are available to be applied to that one lineception by an organism to change or direct the lineception. Herein is the explanation of karma. Since every inception made by an organism (or by a submicroscopic particle of being for the second case, see note 2, p. 32) changes its entire lineception, it also changes its entire perceived or relative universe, which is the only universe it knows or senses. And since causal feedbacks from this perceived universe<sup>1</sup> occur to the organism's perceptron (which itself is part of that perceived universe), then the effects of the organism's actions indeed return precisely to it. So, "as a man soweth, that shall he also reap" is quite true.<sup>2</sup>

It is now possible to formulate some conclusive statements:

1. One perceptron follows a lineception path, mechanically basing its output on its inputs, and this operation establishes causality to perception repetition, i. e., to lineception.
2. Ordinary physical phenomena are merely ensembles of related lineceptions, and are perceived to be absolutely deterministic (obey only cause-and-effect).
3. Living phenomena exhibit the effects (selective behavior) of inception (modulations impressed on lineception) which occasionally diverts one lineception from its deterministic lineception limb to another multi-ception limb, resulting in a changed (modulated) lineception.
4. Ultimate, or absolute, reality may be thought of as the sum-total of all multiceptions and multiflections.
5. "God" is all-being, which is all multiflection and multiception at once, which is both no time at all and forever and all forevers as well.
6. "God's will" is lineception and its accompanying lineflection.
7. "Man's will" or "free will" is inception, the modulation of lineception (and unknowingly its accompanying lineflection). Inception, however, imposes a feedback on the inceptor since a precise feedback, from the inception changes to perception, occurs to the perceptron of the perceiver. This feedback resulting from inception is karma.
8. The law of cause and effect (causality) exists in perceived nonmodulated phenomena (ensembles of lineceptions).
9. Causality is affected (modulated) by living systems, but applies to each choice once made. The causal feedback from inception is karma.

<sup>1</sup>"Perceived" must be accented: the nonperceived universe is not causal, since by definition causality invokes a perceiver and the perception process.

<sup>2</sup>Collective karma of any ordered group such as a species must exist in like manner. On the submicroscopic level. "karma of ensembles" means that the statistics of

<sup>2</sup>Collective karma of any ordered group such as a species must exist in like manner. On the submicroscopic level, "karma of ensembles" means that the statistics of lineceptions and inceptions still lead to causal relationships in the perceived collective phenomena.

10. Neither causality or karma applies in ultimate reality, although all causality lineceptions and their reflections, and all modulations (inceptions) and the karma reflections of those inceptions, are included in ultimate reality.



## VII. CLOSING REMARKS

The quiton/perceptron approach appears to offer a most extensive area for further investigation, and it is hoped that the physicists will interest themselves in the concept. It offers explanations for the problems long posed by ontology, and unifies the bases of science and metaphysics.

We state categorically that the theory explains what electric charge is, why like charges repel, and why unlike charges attract. In addition, since all phenomena are perceptron outputs, the theory indicates that multiple effects which are very close in time or distance will interfere with each other due to turbulent switching; i. e., conservation of mass/energy holds only as long as no switch interference exists. Turbulent switching can possibly disrupt all known physical laws. Unexpectedly strong forces, such as nuclear force, might in fact result from this effect. Other implications include possibility of travel faster than the speed of light (deBroglie waves do this now) and of travel back and forth in "time."

Since both laboratory instruments and human sensory apparatuses are perceptrons and differentiate reality, investigations of physical phenomena should include the laws of the perceptron as well as the laws of the perceived phenomena.

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13. ABSTRACT <p>A fundamental answer is attempted to the question of being, time, space, existence, perception, and physical phenomena. Mass, empty space, gravitational attraction, continuity, discontinuity, and relativity are among the "things" and "nonthings" for which relationships and explanations are provided.</p> <p>Perception is defined as detection by a mass of change to itself and as a differentiating process. Perceived physical phenomena are revealed to be first derivatives of ultimate reality, and outputs of the physical perceiving device call the "perceptron." Using the operation of the physical perception process on action, the units of which are energy times time, an entirely different view is generated of both reality and the Heisenberg uncertainty principle. When superposition is imposed as a condition, the Heisenberg uncertainty principle is revealed to be a quantized statement. A concept of the absolute value of a dimensional molecule is advanced.</p> <p>A reality model is constructed of an action continuum and a nonaction continuum separated by an operational threshold whose magnitude is given by an uncertainty principle. Perception is modeled as a process which switches atomic quanta of action and nonaction back and forth across the threshold. Mass is explained as perceptron switch activity rate, and a mass definition equation is generated. One kilogram mass is shown to represent <math>17.053 \times 10^{50}</math> perceptron switches per second. From the model, Newton's laws of motion and gravity can be generated directly from the concept of the interaction of mass with space itself, space being taken as a massless fluid, or ether, composed of tiny nonaction particles called "quitons." Einstein's postulates of</p>			

composed of tiny nonaction particles called "quintons." Einstein's postulates of

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14.	KEY WORDS	LINK A		LINK B		LINK C	
		ROLE	WT	ROLE	WT	ROLE	WT
	causality perception perceptron quiton quiton/perceptron theory gravitation mass reality metaphysics being existence space time photon action action quantum quantum observation relativity Karma complementarity physical phenomena Mach's principle Newton's laws inertia Debroglie wave Einstein's postulates Michelson-Morley experiment ontology						
	Heisenberg Uncertainty Principle superposition equivalence principle simultaneity inertial frame						
<b>ABSTRACT (Continued)</b> <p>special relativity are also shown to follow from the model, and a statement of the equivalence principle is shown to be consistent with the model.</p> <p>The concept of "lineception" as a causal chain of perceptron operations is advanced. "Inception" is developed as a noncausal modulation of lineception and as a distinguishing feature of a living system. The possibility is raised that inception could provide an explanation of the noncausal, statistical, ultramicroscopic universe and yet require large ensembles of ultramicroscopic events to conform to causality. Inception is shown to lead to karma. Perception is shown to be causal and to generate causality itself.</p> <p>Some elementary philosophical implications of quiton/perceptron theory are pointed out and briefly discussed.</p>							

and briefly discussed.

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Tony,

Found a copy of  
The paper, so here it is.

Cheers,

Tom

P.S. Shortly after this  
the ~~SPAM~~-D was renamed  
the PATRIOT.

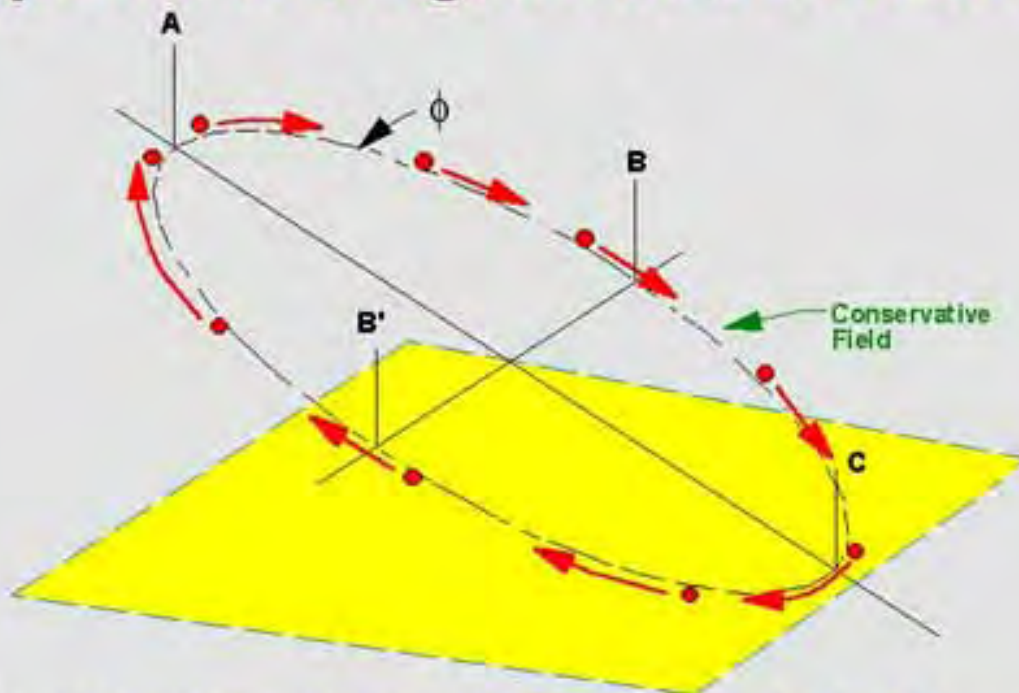
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## Energy, Observations and Comments

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# A Conservative Field Requires a Single-Valued Potential



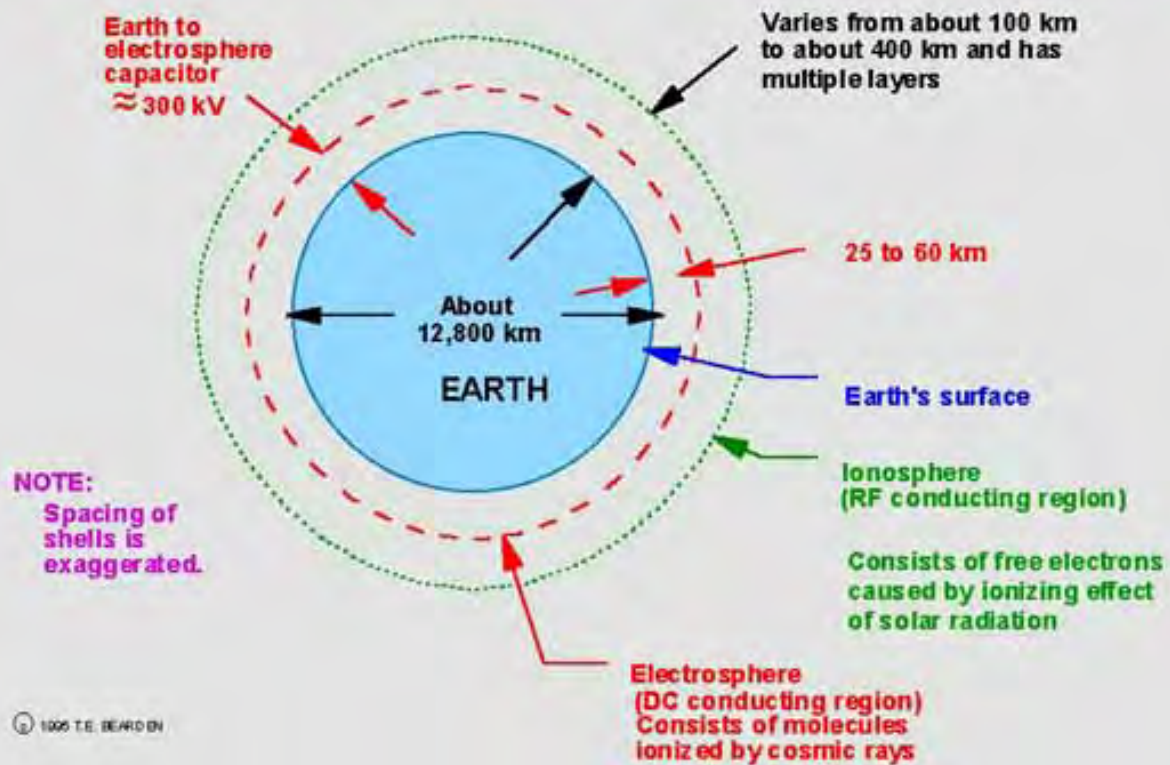
W. S. T. E. B. H. I. E. N

A circular closed path in potential  $\phi$  is given by A-B-C-B'-A.  
 Line integral from A around any closed path back to A is conservative.  
 Along path A-B-C, work  $W(1)$  may be extracted from rolling ball.  
 Along path C-B'-A, must do work  $W(2)$  on ball, where  $W(2) = -W(1)$ .

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# Earth-Electrosphere and Earth-Ionosphere Capacitors

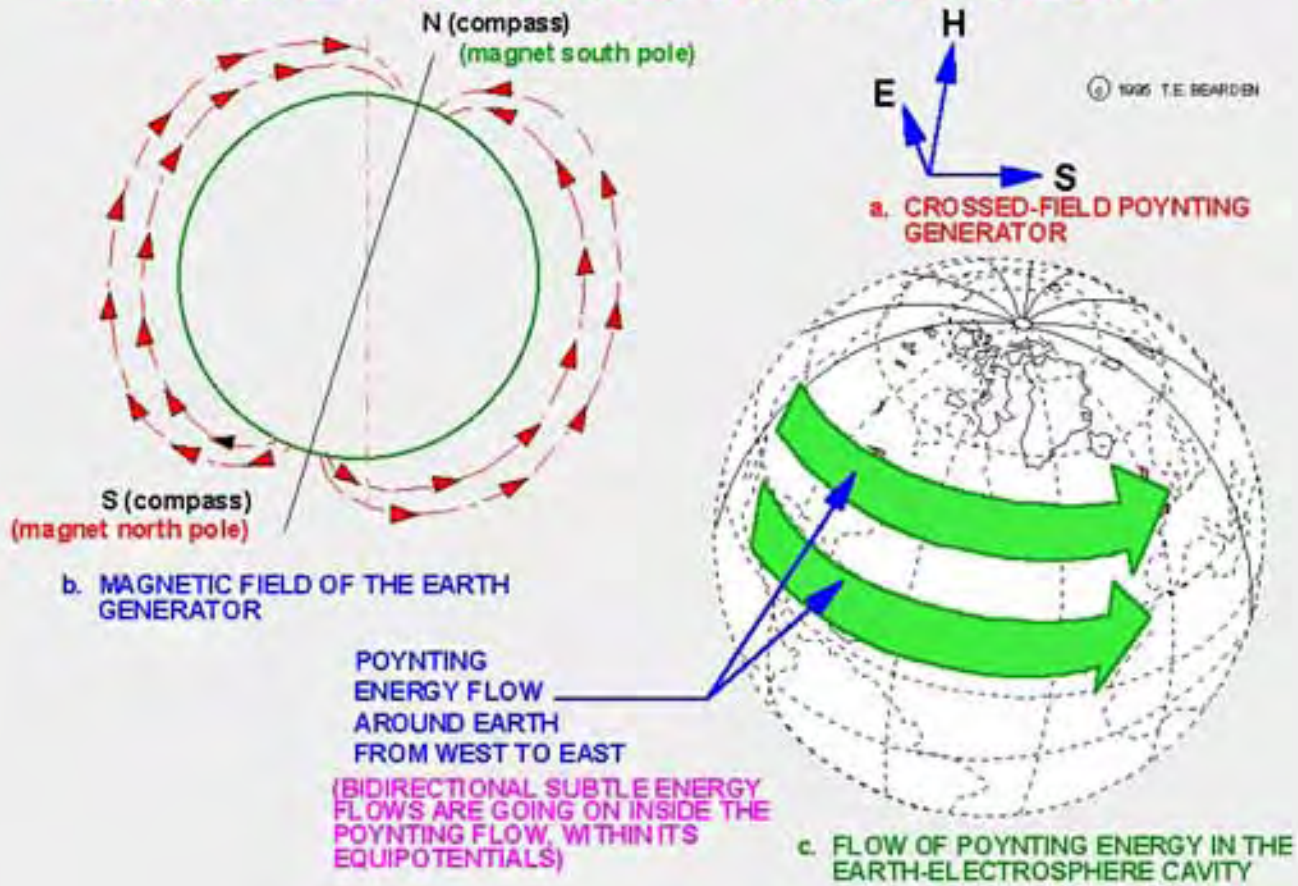


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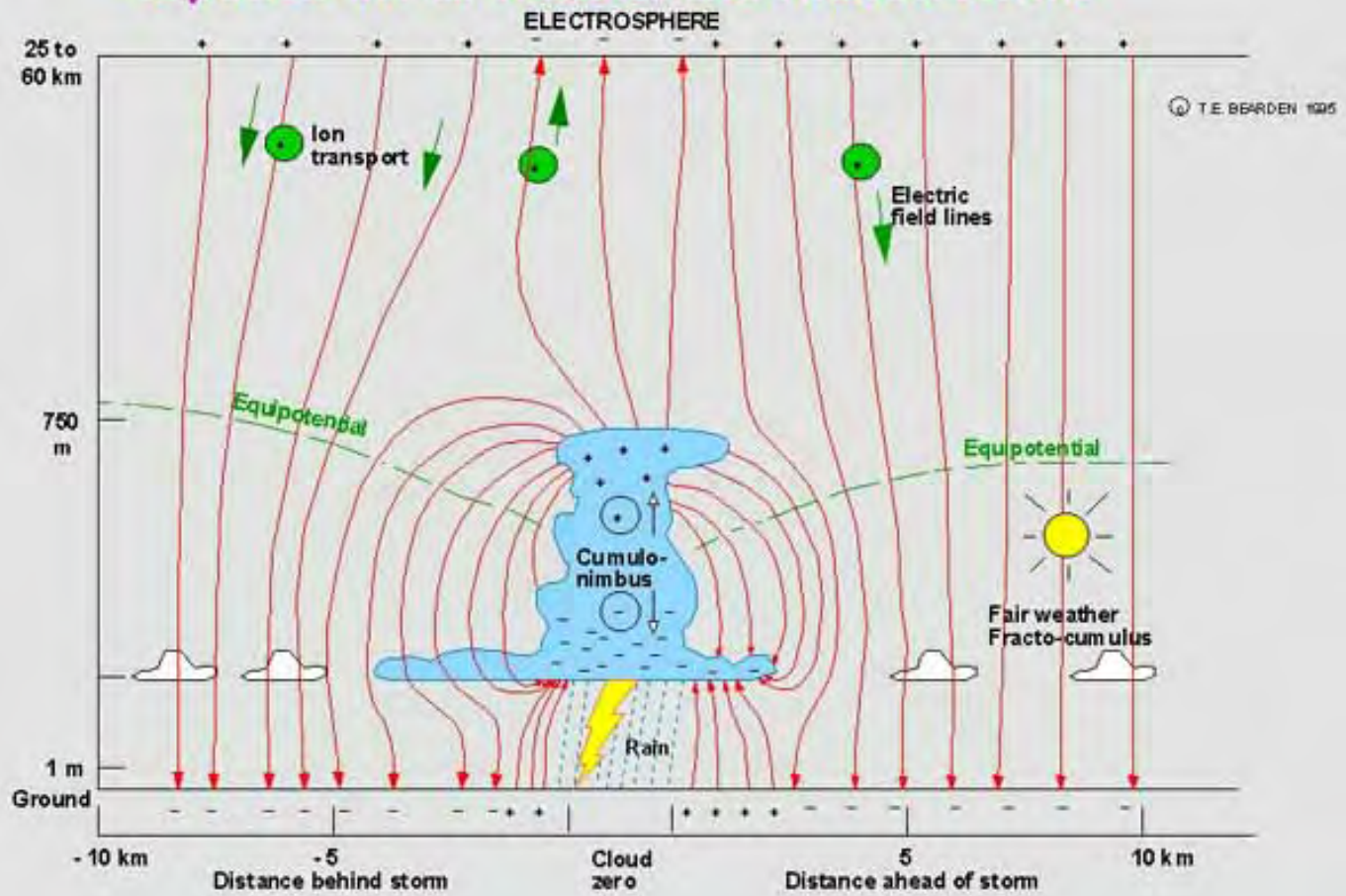
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**Figure 19.** The world of physical matter exists behind a dramatic  $10^{-13}$  filter in a fiery cauldron of fierce and primeval EM energy flow.

## Electrostatic Fields of the Earth-Electrosphere Capacitor in Fair Weather and Thunderstorms

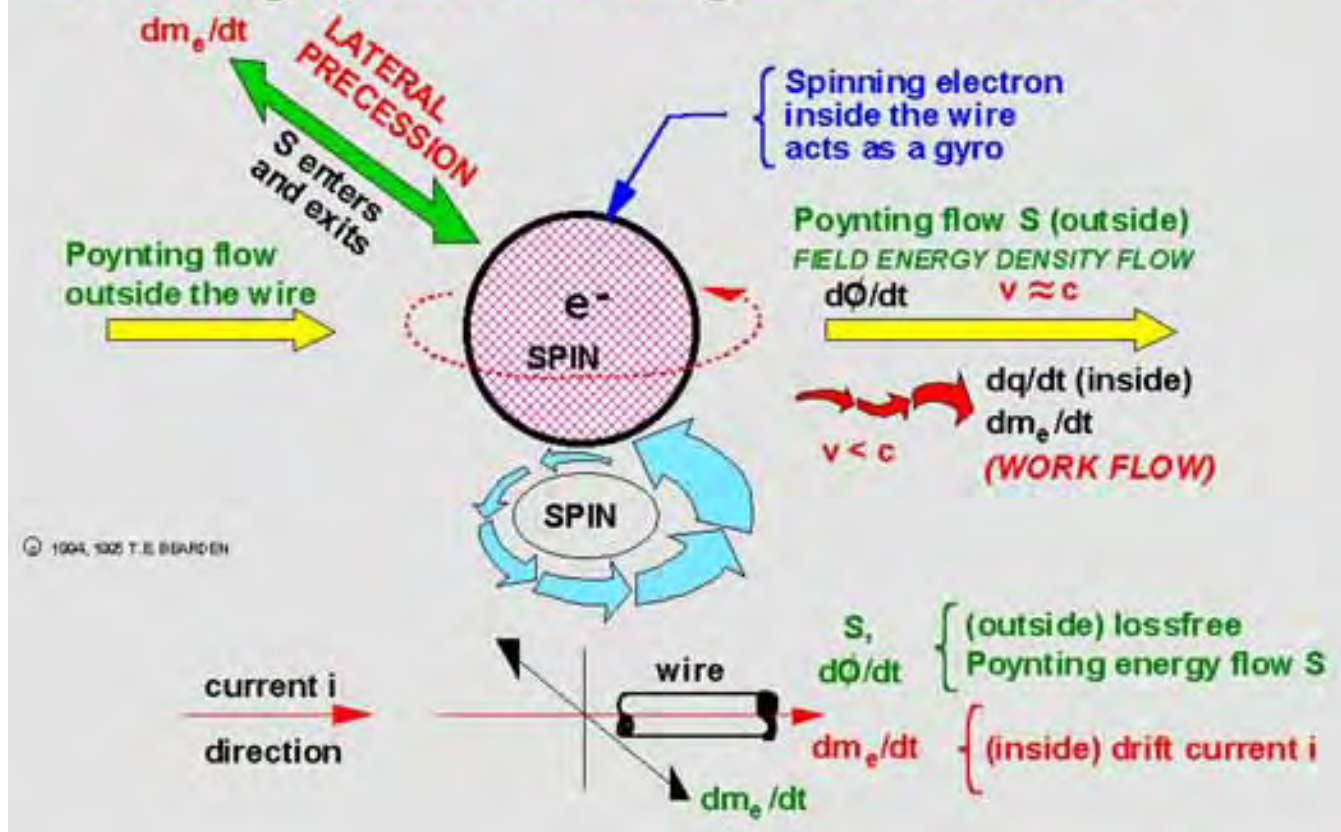


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# Flow of Current and Energy Into, Through, and Along a Conductor

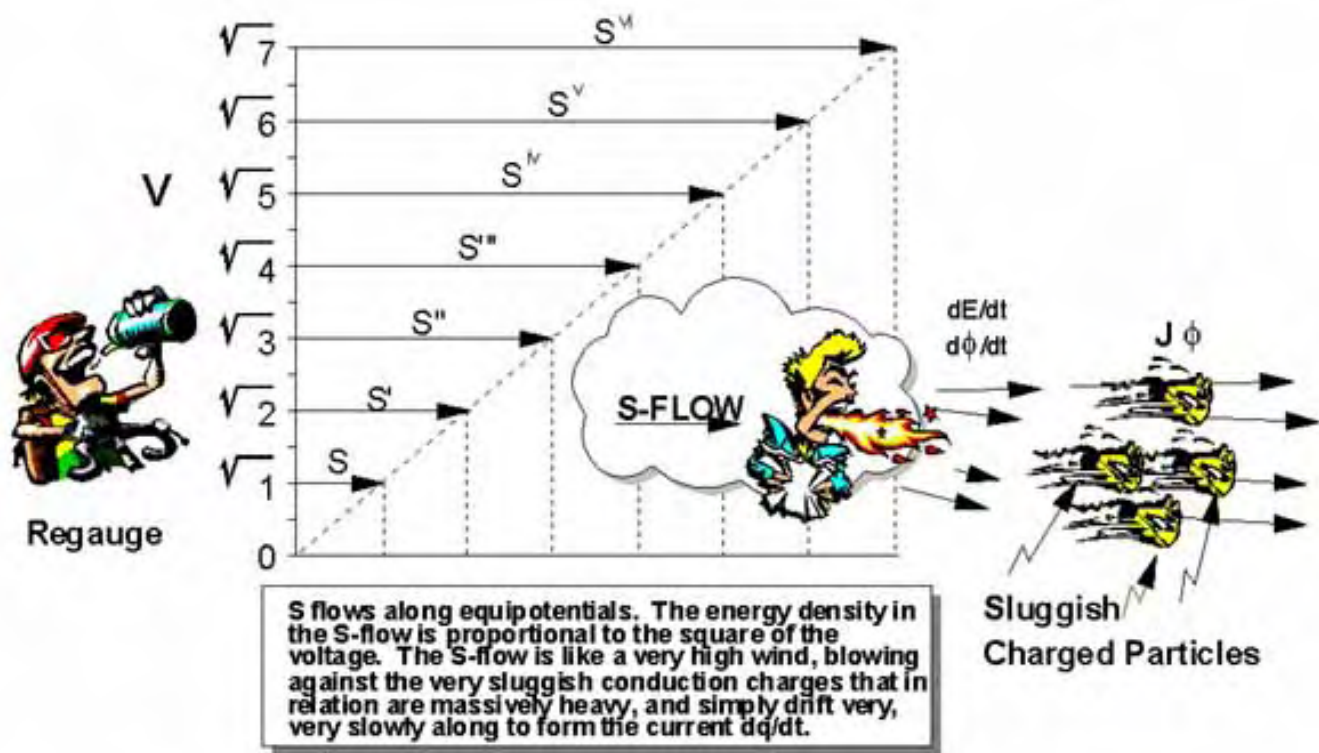


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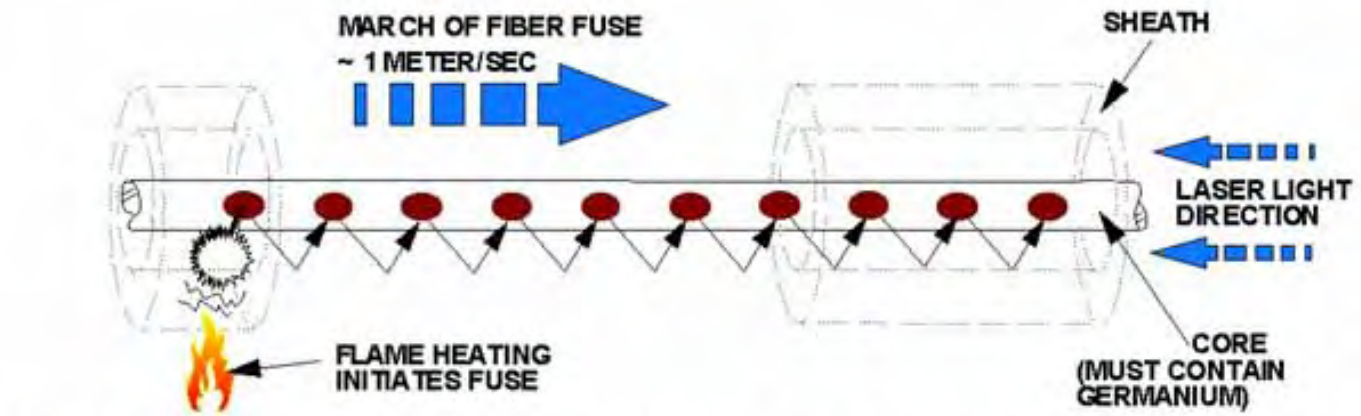


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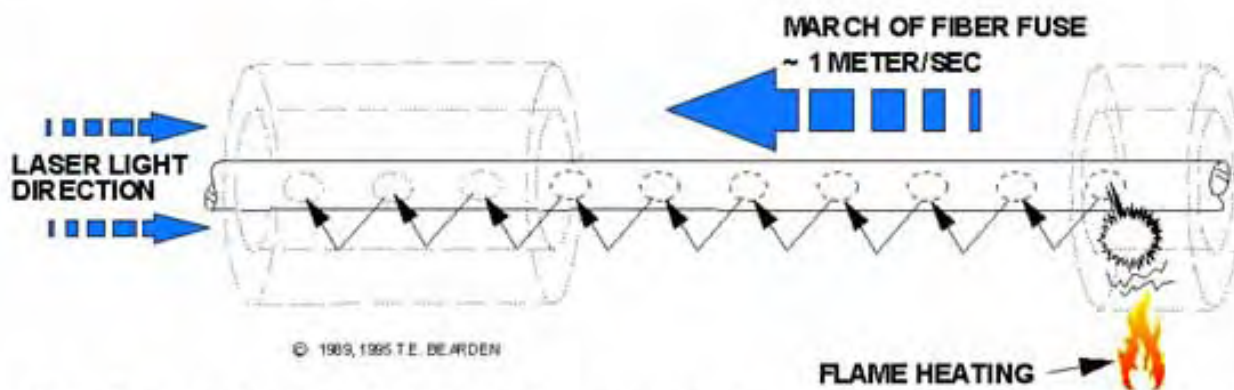
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Figure 17. Energy "collected" on a charge depends upon the charge being in a continuous Poynting S-flow. When S ceases, there is no excess energy "collected" on the charge. Energy collection never occurs in chunks, but is always a dynamic, ongoing process.



31A. Fiber fuse destroys core of fiber optics cable of indefinite length, pitting core with holes.



31B. Reversed second fiber fuse often *restores* pitted core in cable, filling holes back up.

Figure 31. Fiber fuse effect and its strange anomalies.

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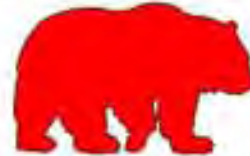
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# Impact of Vacuum Engineering



- "If they [quantum fluctuations of vacuum] can be [tapped], the impact upon our civilization will be incalculable. Oil, coal, nuclear, hydropower, would become obsolete – and so would many of our worries about environmental pollution."
- "Don't sell your oil shares yet – but don't be surprised if the world again witnesses the four stages of response to any new and revolutionary development:
  - 1. It's crazy!
  - 2. It may be possible -- so what?
  - 3. I said it was a good idea all along.
  - 4. I thought of it first."



Arthur C. Clarke  
 "Space Drive: A Fantasy That Could Become Reality"  
 Nov./Dec. 1994

## ■ Comment:

- *Every dipole's broken symmetry in its energetic exchange with the vacuum already freely extracts vacuum energy.*
- *In power sources, the dipole gates the extracted energy out as  $S = EXH$ , which flows almost entirely outside the conductors.*
- *The circuit interacts with, and uses, only about  $10^{-13}$  of  $S$ . The electrodynamicists calculate only this small  $S$ -component.*

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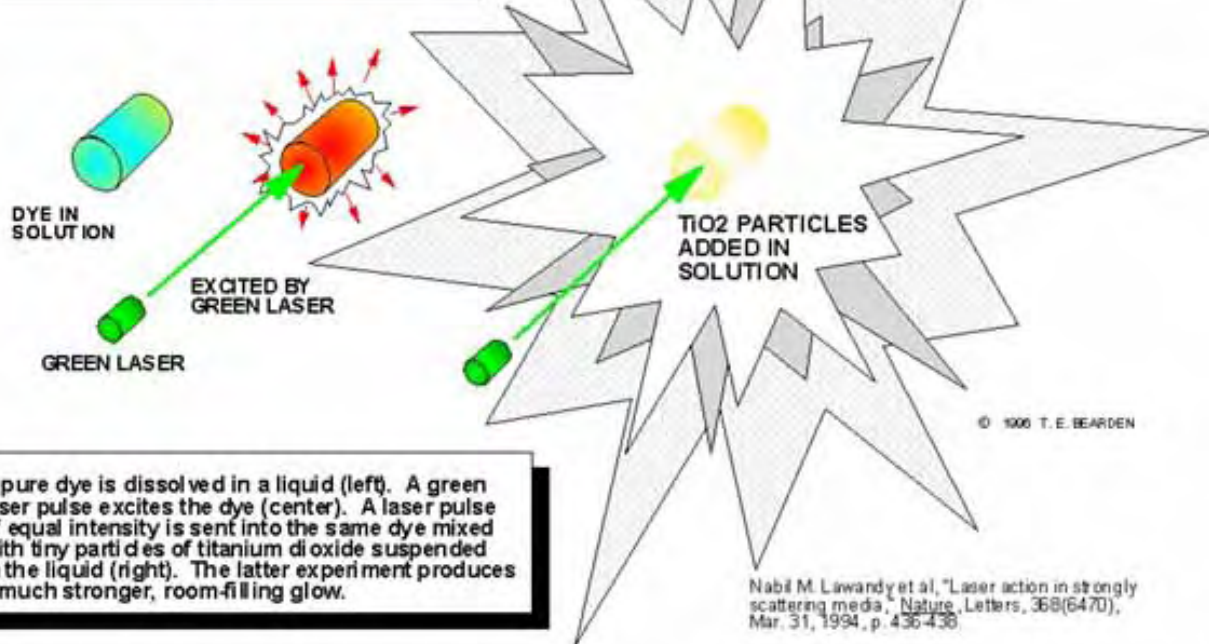
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**Note: Example of anti-Stokes radiation, where medium emits excess radiation and energy. In this case, energy is replenished directly from vacuum's energetic interaction.**

Selected clipart © by Lotus SmartPics™



**Figure 28. Lawandy's experiment (Letokhov-Lawandy effect) with multipass, multicollection of energy. Formation of a quantum potential can also become involved. Retroreflection and self-targeting are key.**

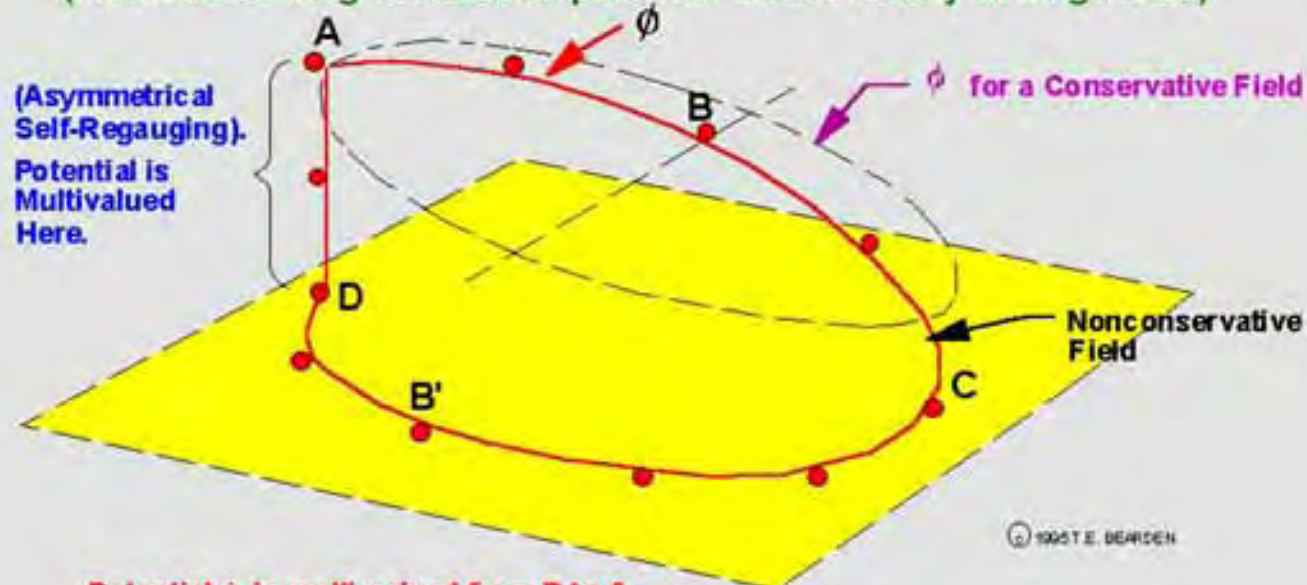
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# Field may be nonconservative for a multivalued potential

(Multivalued magnetic scalar potential arises readily in magnetics)



**Potential  $\phi$  is multi-valued from D to A.**

Line integral from A around this closed path back to A is nonconservative. Along entire path A-B-C-B'-D, work may be extracted.

No work is required to go from D to A. When ball arrives at D, it also arrives at A simultaneously. I.e., the potential "jumps" in magnitude.

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***We're running out of energy!  
We must redouble our efforts!***

Selected clipart © by IMSI MasterClips™

Selected clipart © by Lotus SmartPics™



***We have to keep polluting the  
Earth, if we are to have energy!***



***Actually, a few of our electrical  
systems already produce all  
the energy we could ever need!  
Learn to collect it and use it!***



***All our antibiotics are failing!  
Millions will die from the new  
age of pandemics and from  
terrorists' BW attacks!!***



***We have to relegate EM effects  
on biological systems to the  
trash heap. We can only try to  
find more drugs and antibiotics.***



***Actually, Priore already showed  
how to cure most dread diseases,  
by making and directing vacuum  
engines. Becker showed you it  
worked. Develop it and use it!***

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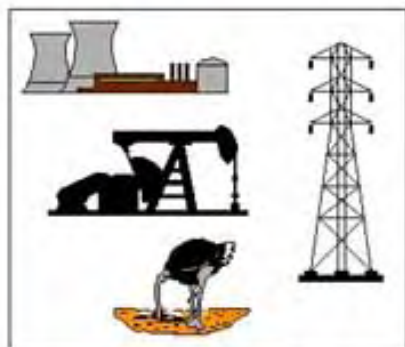
**Figure 33. The only problem is the ostrich problem.**

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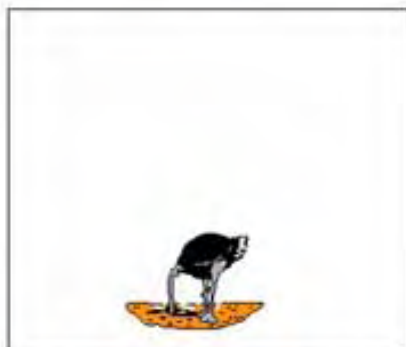
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*We're running out of energy!  
We must redouble our efforts!*



*We have to keep polluting the  
Earth, if we are to have lots of  
electrical energy!*



*Every dipole is a  
universal free  
energy generator*

*Actually, a single one of our large electrical  
power systems already produces all the free  
Poynting energy the world could ever need!  
We just have to learn how to collect more  
of it and use it without continually destroying  
the source dipole!*

**Figure . The only energy resource problem is the theoretical ostrich problem.  
We must become theoretical owls, rather than ostriches.**

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# RUSSIAN "SWITCHED PARAMETERS" DEVICES: SELF-OSCILLATING ROTARY GENERATORS\*

- ★ *Excites oscillations without explicit sources of magnetic or electric forces (i.e., regauges)*
  - *Periodic variation in system's parameters*
  - *Experimental and theoretical proof*
  - *Multiple successful systems made, tested*
  - *Papers published in Russian, French journals*
- ★ *As theory predicts, power continually increases unless load is adjusted to stabilize system*
- ★ *Several large systems tested to self-destruction*
- ★ *Several large stable systems built, tested*

\* "On the parametric excitation of electric oscillations,"  
L.I. Mandel'shtam and N.D. Papaleksi, Zh. Tek. Fiz. 4(1), 1934, p. 5-29.

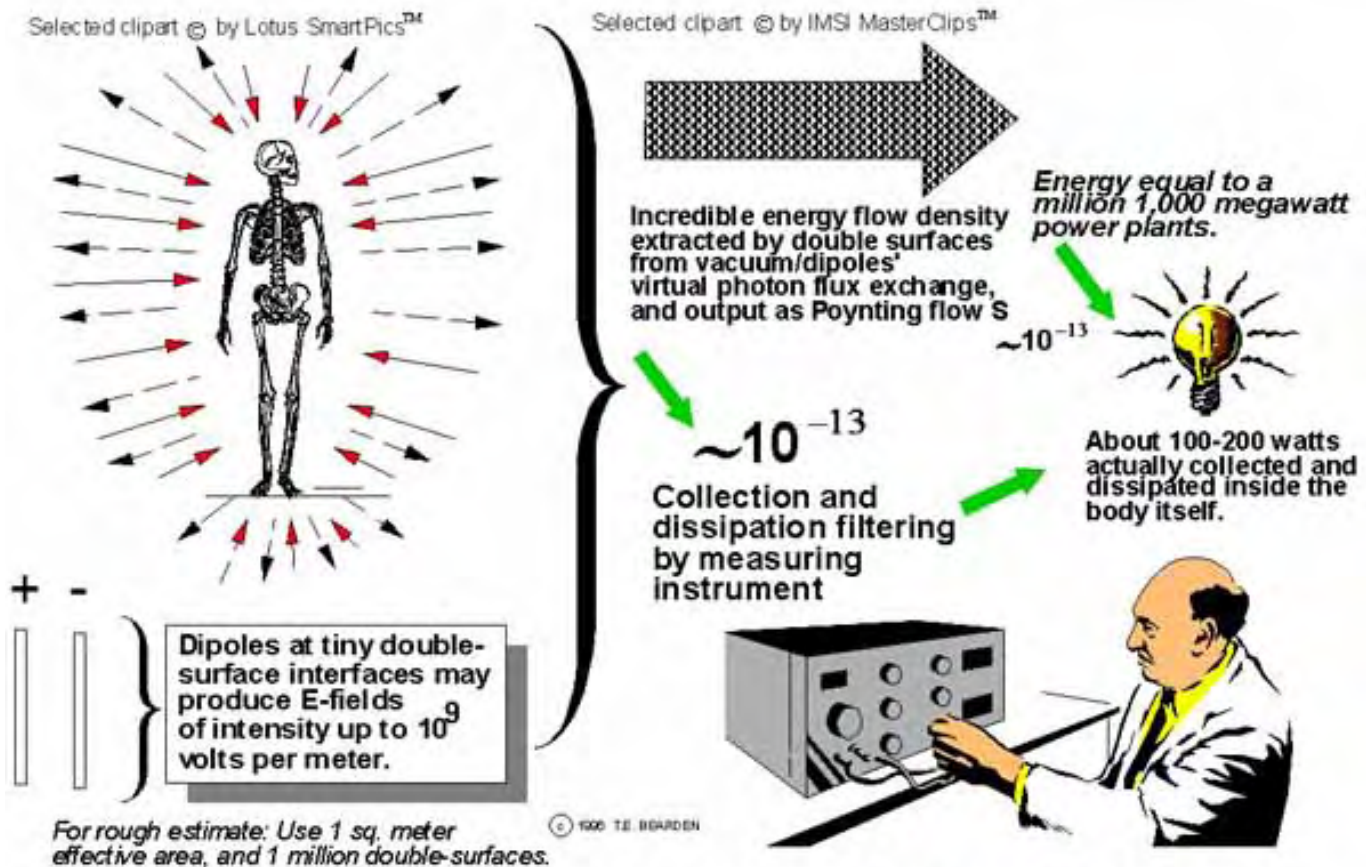
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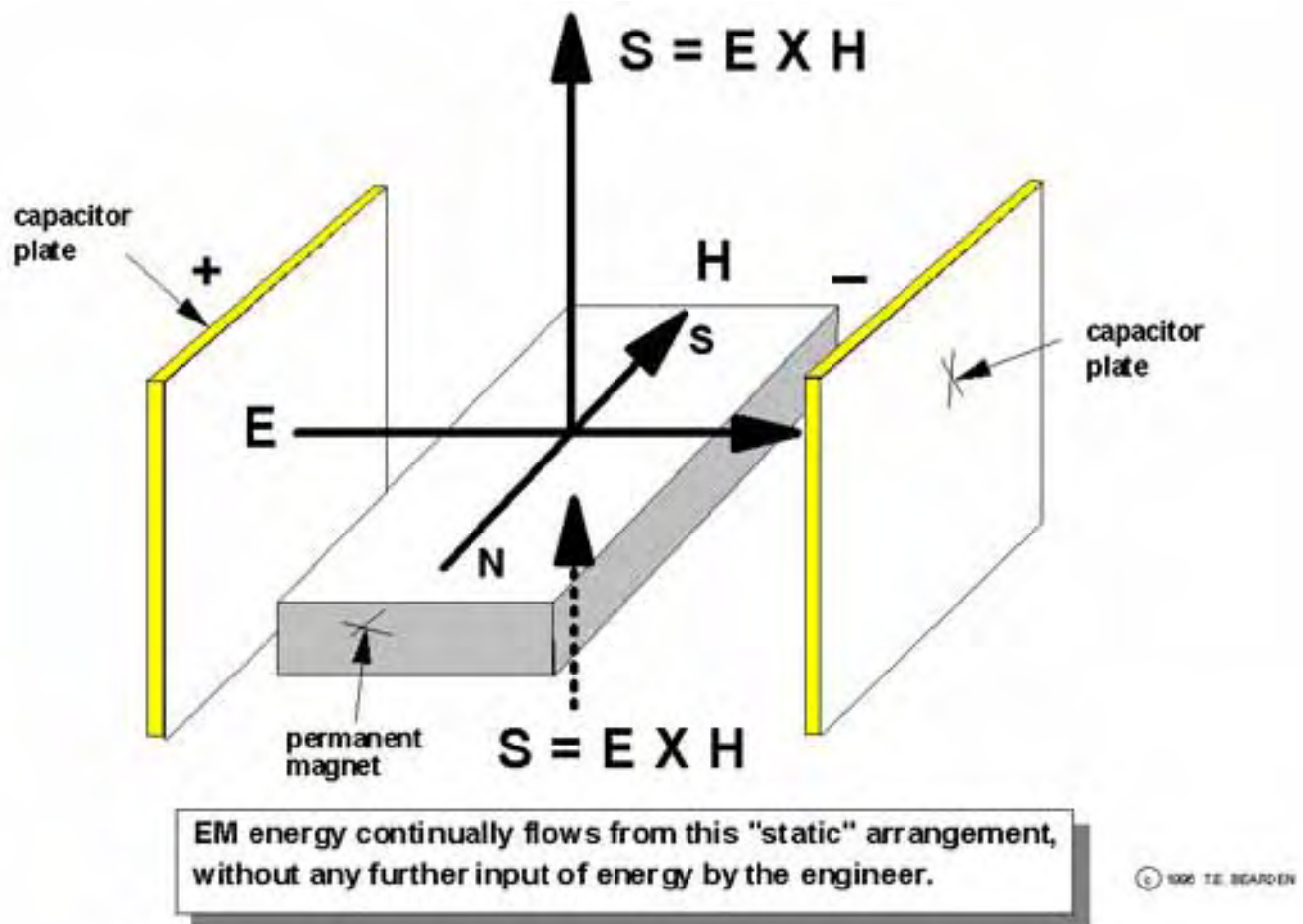


**Figure 20.** One human body produces more energy flow than all the electrical power loads on earth dissipate. However, only 100-200 watts of its own energy output is collected and dissipated by the body.

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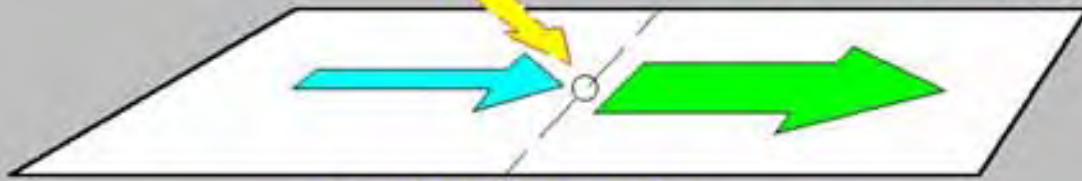
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Figure 18. A "static" Poynting S-flow free-energy generator.

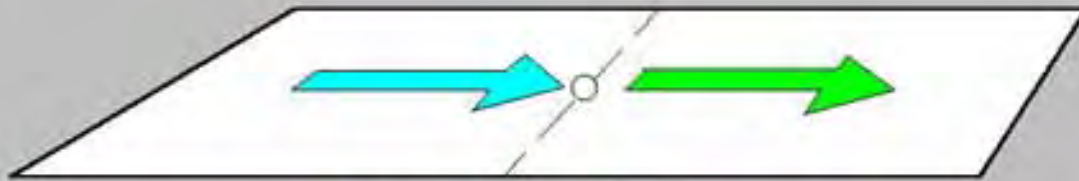
# Topology and Energy Conservation

Example: Conservation in  
2D versus 3D topologies



3-D CONSERVATION  
(2-D CONSERVATION VIOLATED)

© T. E. BEARDEN 1992, 1995



2-D CONSERVATION

Increasing the dynamic topology allows lower topology conservation laws to be violated. The lower topology system is now an open system and may seemingly act as a source or sink.

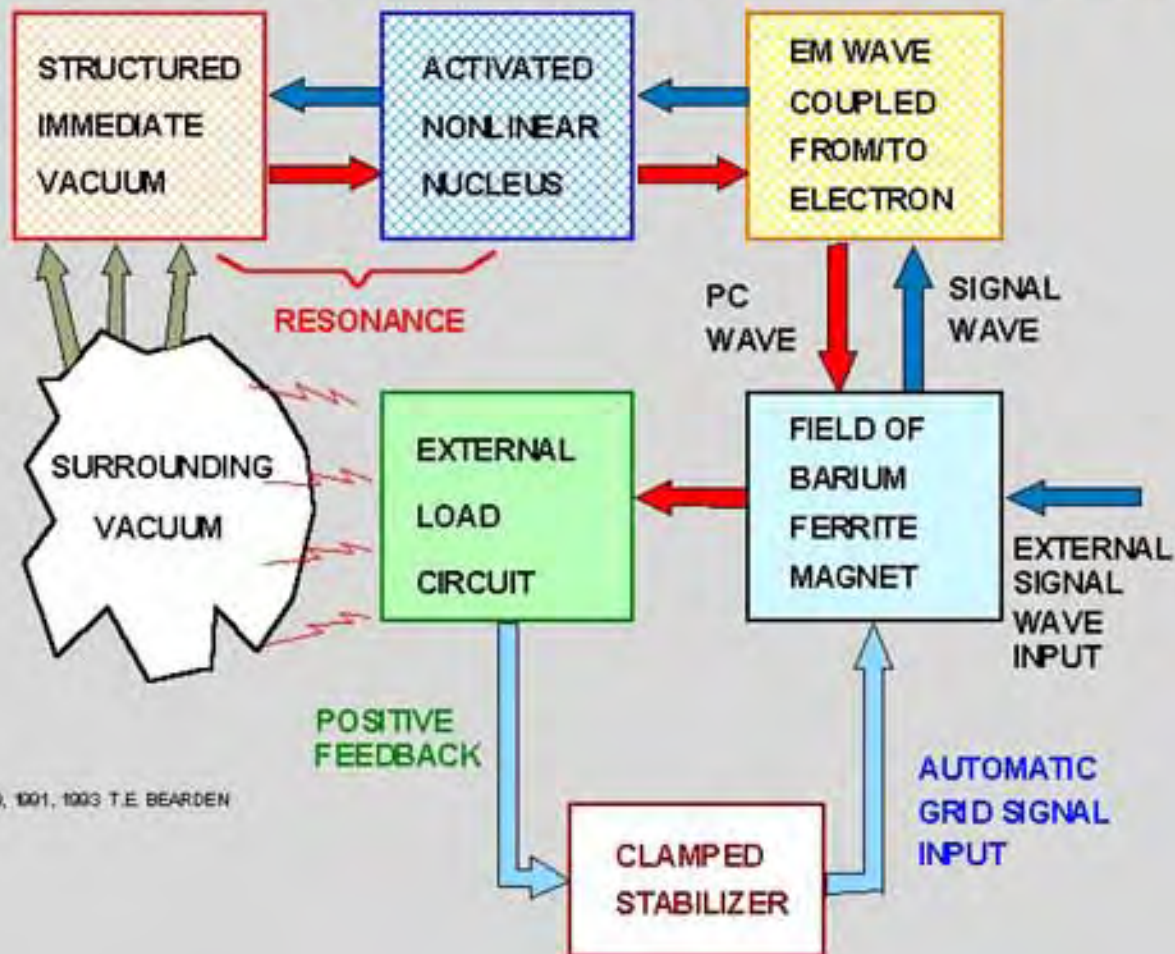
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# Block Diagram: Sweet's Vacuum Triode



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- [Evolution of Cells on Earth](#)
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- [Typical circuit has about  \$10^{-13}\$  energy collection efficiency](#)
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- [Mass is transparent to longitudinal EM waves, which move through the infolded interiors of internal waves, potentials, and fields in the mass.](#)

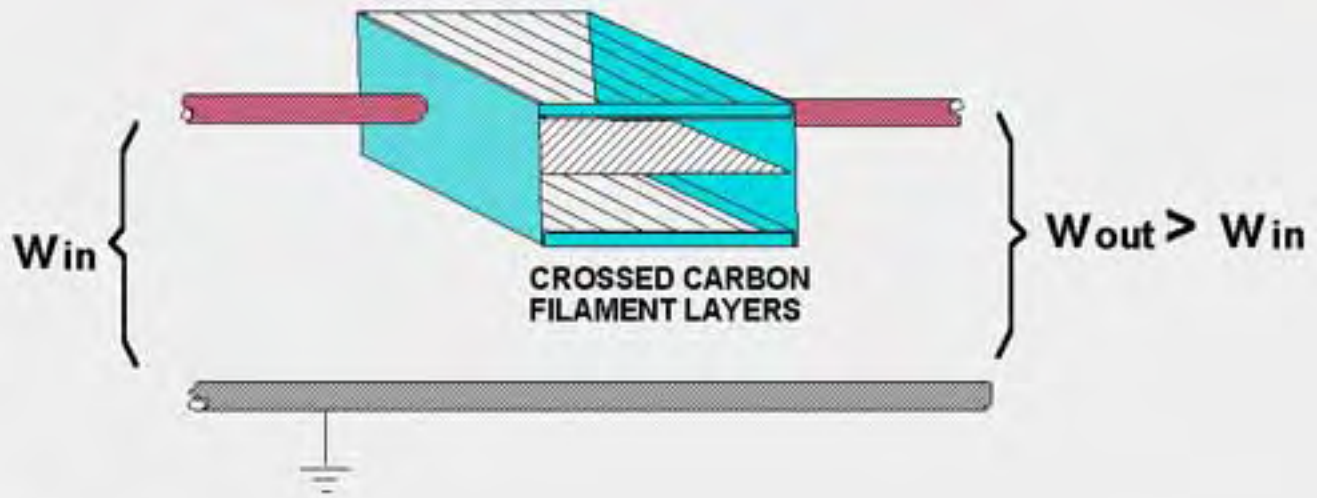
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- [Maxwell's Quaternion Theory](#)
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- [Maxwell's four equations reduce to: Page 1](#)
- [Maxwell's four equations reduce to: Page 2](#)
- More to come

# *Major Points of Presentation*

- **Electrodynamics is seriously flawed**
  - Some major flaws
  - Corrections indicated
- **Why past corrective attempts failed**
  - Force field concept is material
  - Missing two infolded transforms ( $M \rightarrow ST$ ;  $ST \rightarrow M$ )
- **Missing Infolded general relativity inside electrodynamics**
- **Several Kinds of EM Waves in Space**
  - How to make
  - Transduction
- **A French medical example as a deep experimental demonstration**
  - Spectacular regenerative cures funded by French Govt
  - Not comprehended, therefore suppressed
- **Cold Fusion examples of time-density wave effects**
  - China Lake Instrumental anomalies in electrolysis
  - Explanation of anomalous behavior of instruments
  - Explanation of new nuclear reactions
  - Wave energy transduction provides excess heat
- **Urge theorists to consider dramatically new reactions**

# Chung's Carbon Filament Negative Resistor

UNIVERSITY AT BUFFALO, NY



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# Aharonov-Bohm Effect



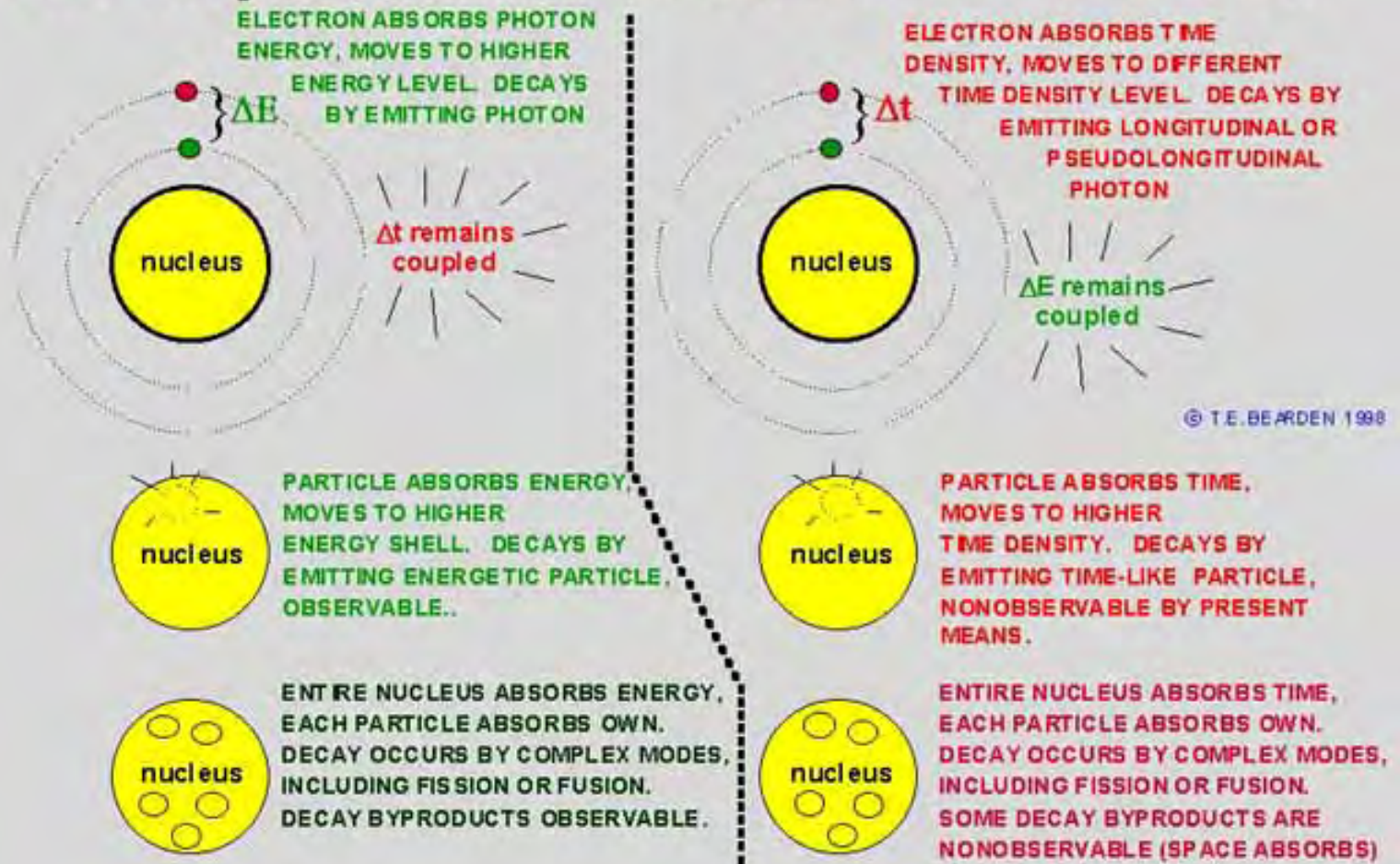
- **In field-free regions**
  - **E-field is zero**
  - **B-field is zero**
- **Potentials still exist, just no gradients**
  - **Cause real effects**
  - **Interference is the key**
  - **Contain sum-zeroed substructures**
- **Does not follow from**
  - **Mechanics**
  - **Classical electromagnetics**
- **Required by quantum mechanics**

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# Absorption and emission reactions



# Absorption and emission reactions

## TRANSVERSE PHOTON

ELECTRON ABSORBS PHOTON ENERGY, MOVES TO HIGHER ENERGY LEVEL. DECAYS BY EMITTING PHOTON, REMOVING  $\Delta t$

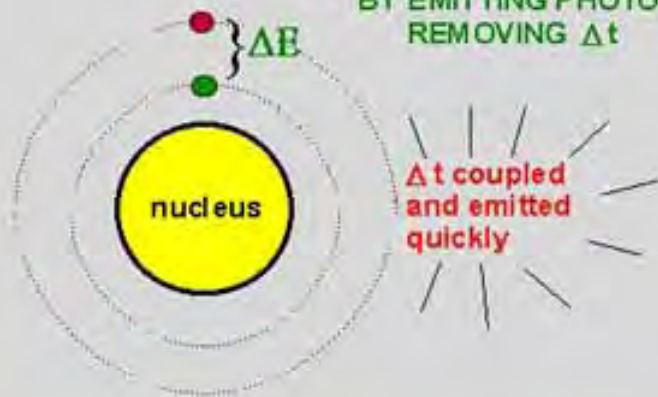


Figure A. Excited energy density level in one jump.

## STREAM OF TIME-POLARIZED PHOTONS

ELECTRON ABSORBS TIME DENSITY, MOVES TO  $1/\sqrt{2}$  DIFFERENT TIME DENSITY LEVEL. DECAYS BY EMITTING LONGITUDINAL OR PSEUDOLONGITUDINAL PHOTONS

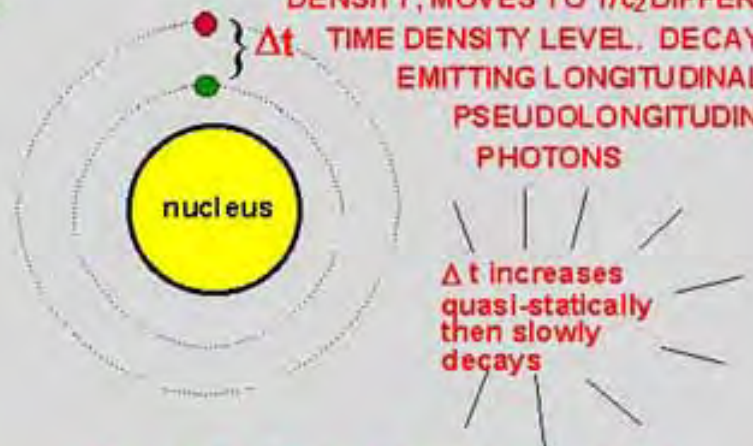
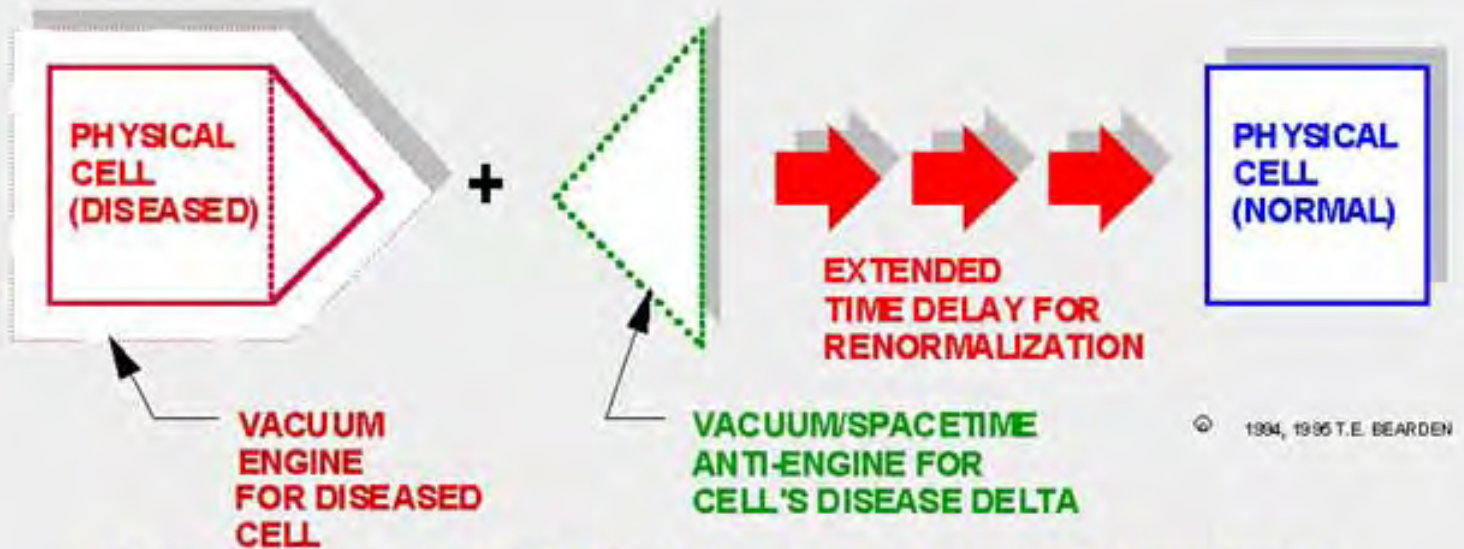


Figure B. Excited time density level significant only after enormous number of increases.

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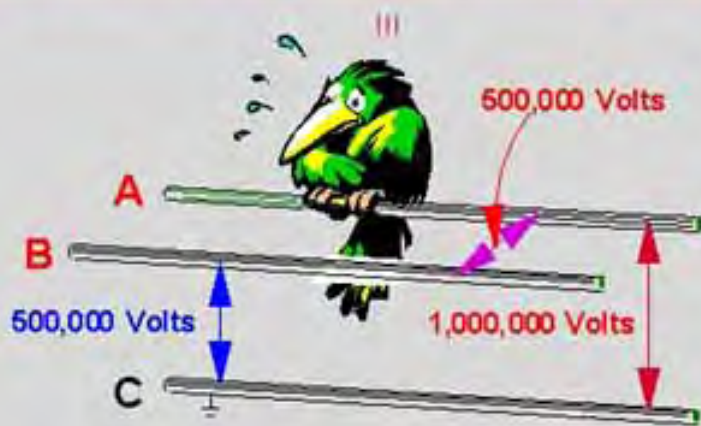
# ANTI-ENGINE FOR CELL'S DEVIATION REVERSES CELL BACK TO NORMAL



By pumping the internal EM channel, process is dramatically accelerated.  
This is the body's normal recovery mechanism, within its limits.

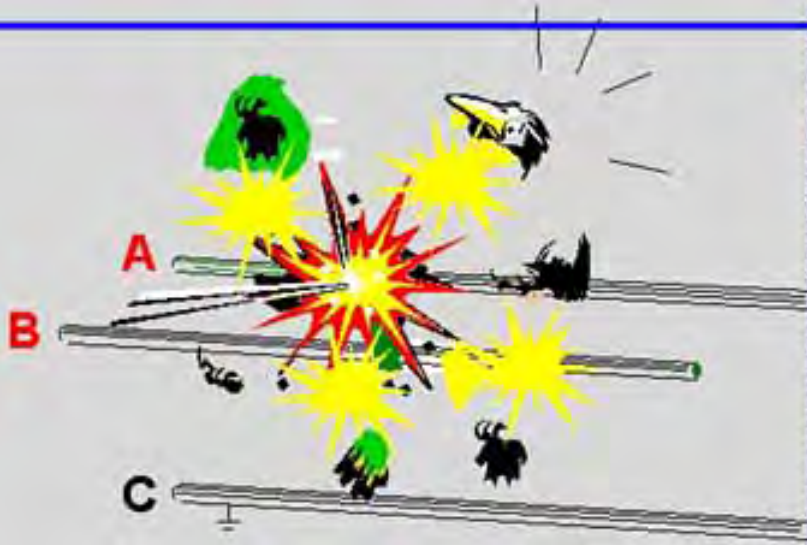


# Asymmetric Regauging Produces Excess Force, Which Can be Used to Do Work on the System



## Net Symmetric Regauging Does No Excess Work on the System

This little bird put one foot on wire A, and then the second foot on wire A also. He net symmetrically regauged, so he had no net excess force across him, even though his potential energy was increased. He asymmetrically regauged each foot, but both simultaneously so that one countered the other. Wise little bird!



## Net Asymmetric Regauging Can Do Excess Work on the System

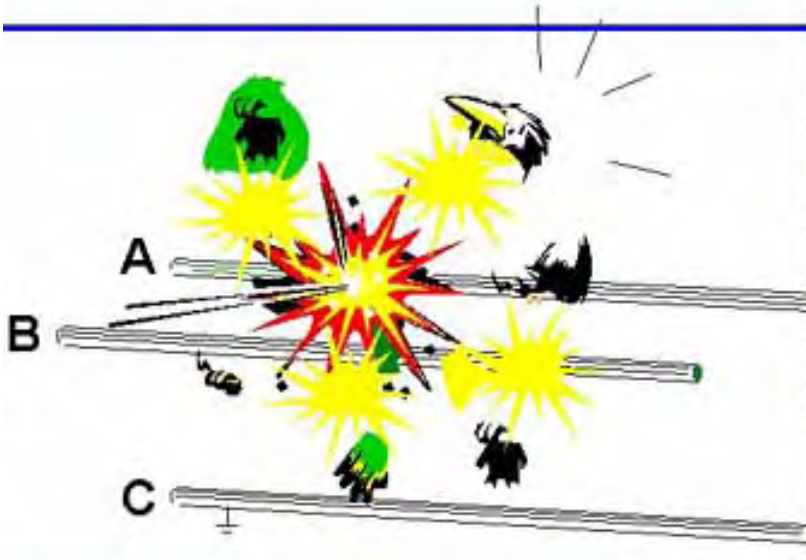
This little bird put one foot on wire A, and then the second foot on wire B. He net asymmetrically regauged, so he had lots of net excess force across him. That force then violently translated his little body parts every which way, doing lots of work in and on him. Bummer!

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### **Net Symmetric Regauging Does No Excess Work on the System**

This little bird put one foot on wire A, and then the second foot on wire A also. He net symmetrically regauged, so he had no net excess force across him, even though his potential energy was increased. He asymmetrically regauged each foot, but both simultaneously so that one countered the other. Wise little bird!



### **Net Asymmetric Regauging Can Do Excess Work on the System**

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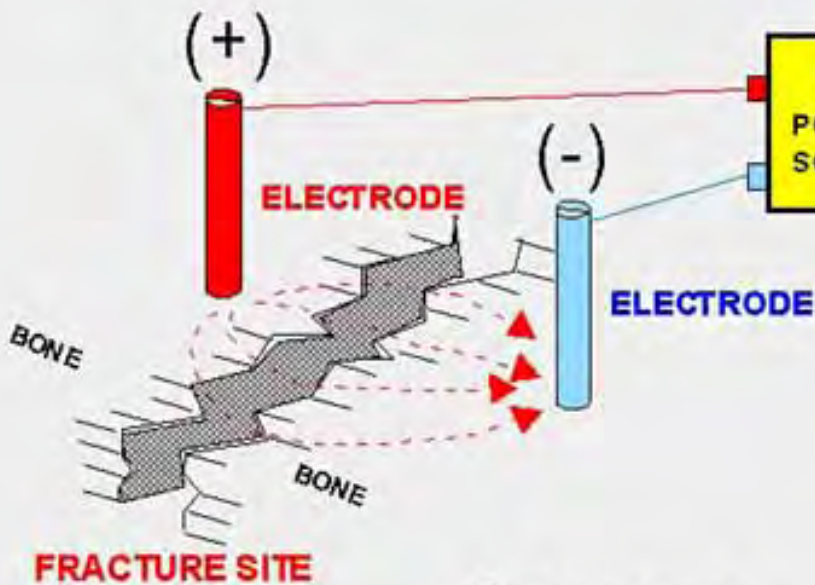
Figure 32. Asymmetric regauging produces excess force, which can be used to do work on the regauging system.

Selected clipart © by Lotus SmartPics™



# Becker's bone fracture healing experiments

- Tiny DC currents (picoamperes)
- Pulsed DC current can be utilized
- Pulsed magnetic fields may be utilized



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RED BLOOD CELL  
DEDIFFERENTIATES  
Shucks hemoglobin coat  
Grows nucleus

NEW CELL  
REDIFFERENTIATES  
Turns into type of cell that  
makes cartilage

NEW CELL  
REDIFFERENTIATES  
Turns into type of cell that  
makes bone  
Deposits in fracture site,  
healing the fracture

**Trauma Producing  
Tissue Loss**

## **Becker's theoretical control system governing regeneration\***

**Local cellular effect**

**Local nerve effect**

**CNS effect**

**Alterations in hormone  
pattern (prolactin)**

**Alterations in local  
DC field pattern**

**Local electrical  
effects**

**Local and systemic  
pools of target cells**

**Dedifferentiation into  
primitive mesenchymal cells**

**Phase I**

**Blastema formation**

**growth**

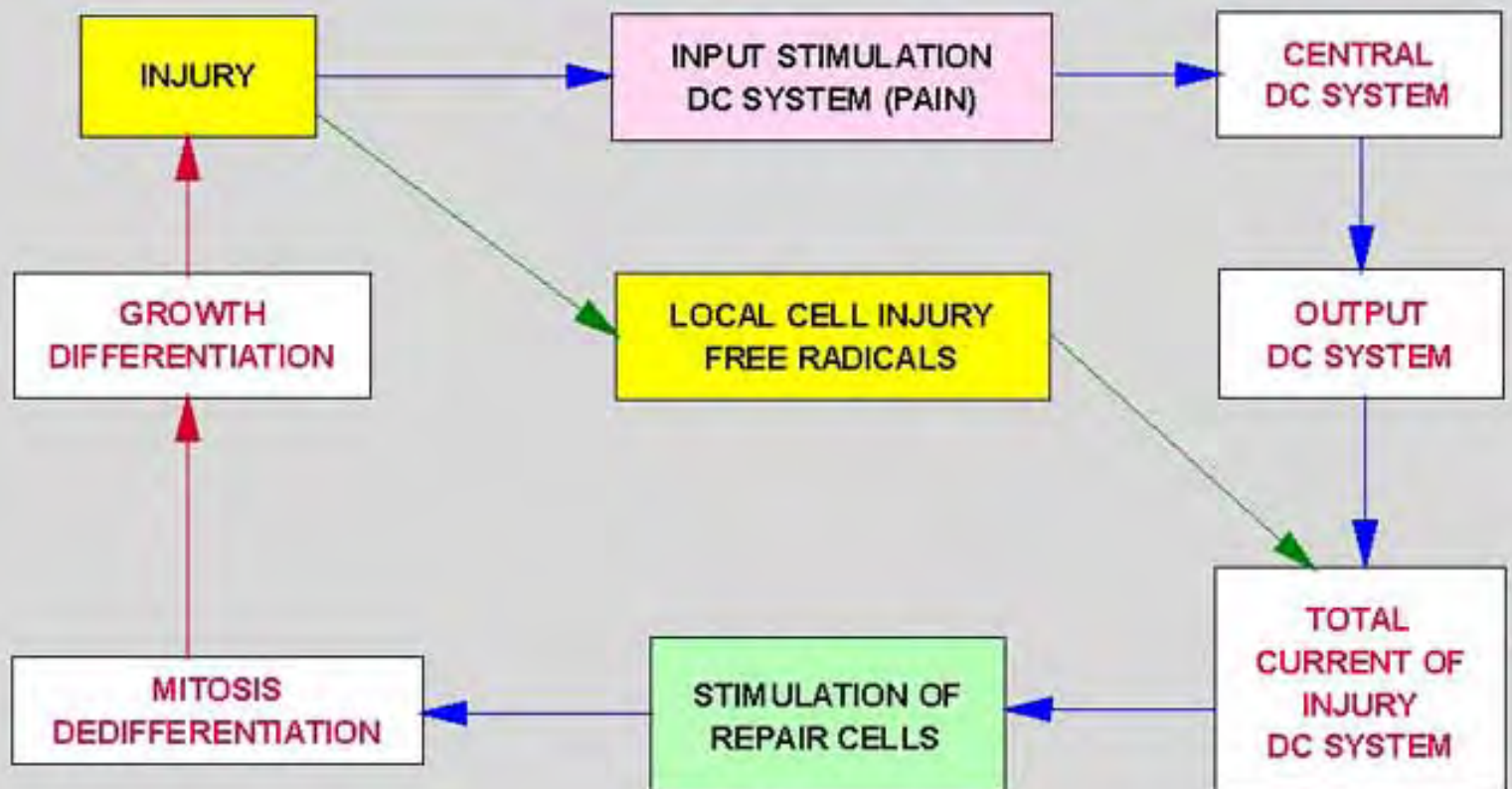
**Phase II**

**Redifferentiation into  
required cell types**

**Restoration of body  
part or tissue**

\*Becker & Spadaro, "Electrical stimulation of partial limb regeneration in mammals," Bull. N.Y. Acad. Med., 48(4), May 1972, p. 629.

## ***Becker's theoretical DC control system involved with response to injury\****

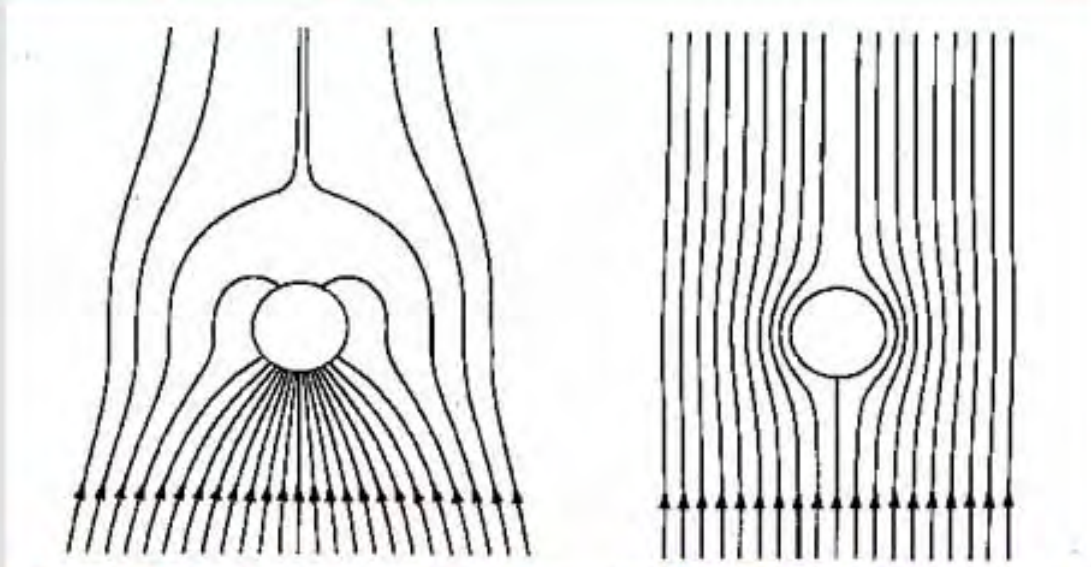


\*Robert O. Becker, "The significance of bioelectrical potentials," *Bioelectrochemistry and Bioenergetics*, Vol. 1, 1974, p. 191.



# Geometrical Distortion of Poynting Energy Flow

At or near resonance frequency, in the case shown the energy collection fraction (reaction cross section) increases dramatically.



**a. Around an aluminum sphere  
at light energy 8.8 eV.  
Absorption efficiency = 18.00.**

**b. Around an aluminum sphere  
at light energy 5eV.  
Absorption efficiency = 0.1.**

Figures per Craig F. Bohren, "How can a particle absorb more than the light incident upon it? ", American Journal of Physics, 51(4), Apr. 1983, p. 326.



# Cosmic Bootstrap: Before the Big Bang:

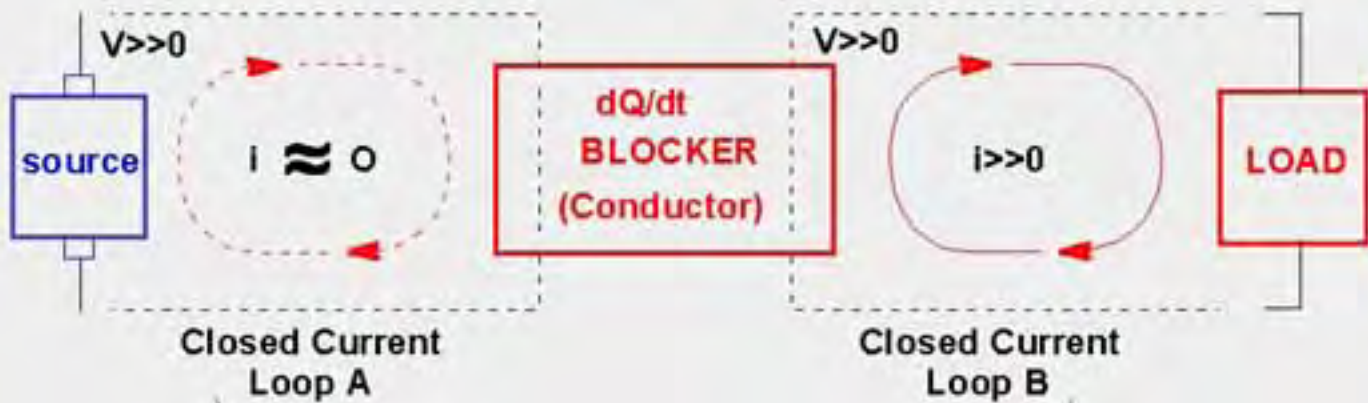


- *Cosmic repulsion behaved like a fluid with negative pressure*
- *The "universe" inflated (expanded) as a "false vacuum"*
- *As the negative-pressure fluid expanded, its energy went up rather than down*
- *When inflation stopped, the false vacuum decayed from its excited state*
- *Its excitation energy was released in a single great burst*

Paul Davies, Superforce, 1984, p. 194

# **BRIDGING ENABLES COP > 1.0**

S-flow,  $d\phi/dt$  flow, and EMF flow



**BRIDGE**

**Patent Pending**

**Current loop B is asymmetrically regauged by S,  $d\phi/dt$ , and EMF flow from current loop A.**

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# Aspects of Strong Local Asymmetry

- **If local asymmetry is strong, conservation laws may be appreciably violated**

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- ◆ Energy
- ◆ Charge
- ◆ Spin
- ◆ Momentum
- ◆ Angular momentum

- **Properties of an object may differ appreciably for**

- ◆ Different observers
- ◆ Different detecting means
- ◆ One time to another
- ◆ One position to another

- **STRUCTURING THE INFOLDED EM INSIDE POTENTIALS, FIELDS, AND WAVES**

- ◆ Strongly breaks local symmetry
- ◆ Provides spacetime engines giving the above effects

# Other Aspects of Strong Local Asymmetry

- Local spacetime is curved
- Lorentz invariance of vacuum is violated
- May be a local "sink" or "source"
- Gravitational-inertial effects from EM
- Translation between virtual and observable
- Electrogravitational solitons
- Action at a distance
- Transmutation effects may exist
- Scalar/pseudoscalar field translation
- **COMMENT:** Thus the use of infolded longitudinal EM fields and waves to strongly break local symmetry allows internested clustering of spacetime curvatures. These spacetime structures are vacuum engines, or *spacetime engines*.

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# **Bunge on the Status of Electrodynamics**

**"... it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state..."**

**"... the best modern physicist is the one who acknowledges that neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling..."**

\*Mario Bunge, Foundations of Physics, Springer-Verlag, New York, NY, 1967, p. 176..

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# **Bunge on the Status of Electrodynamics and Physics**

**"... it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state..."**

**"... neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling..."**

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\*Mario Bunge, Foundations of Physics, Springer-Verlag, New York, NY, 1967, p. 176..



# **Bunge on the Status of Classical and Quantum Physics**

**"... it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state... the best modern physicist is the one who acknowledges that neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling not only to better cover their own domains but also to join smoothly so as to produce a coherent picture of the various levels of physical reality."**

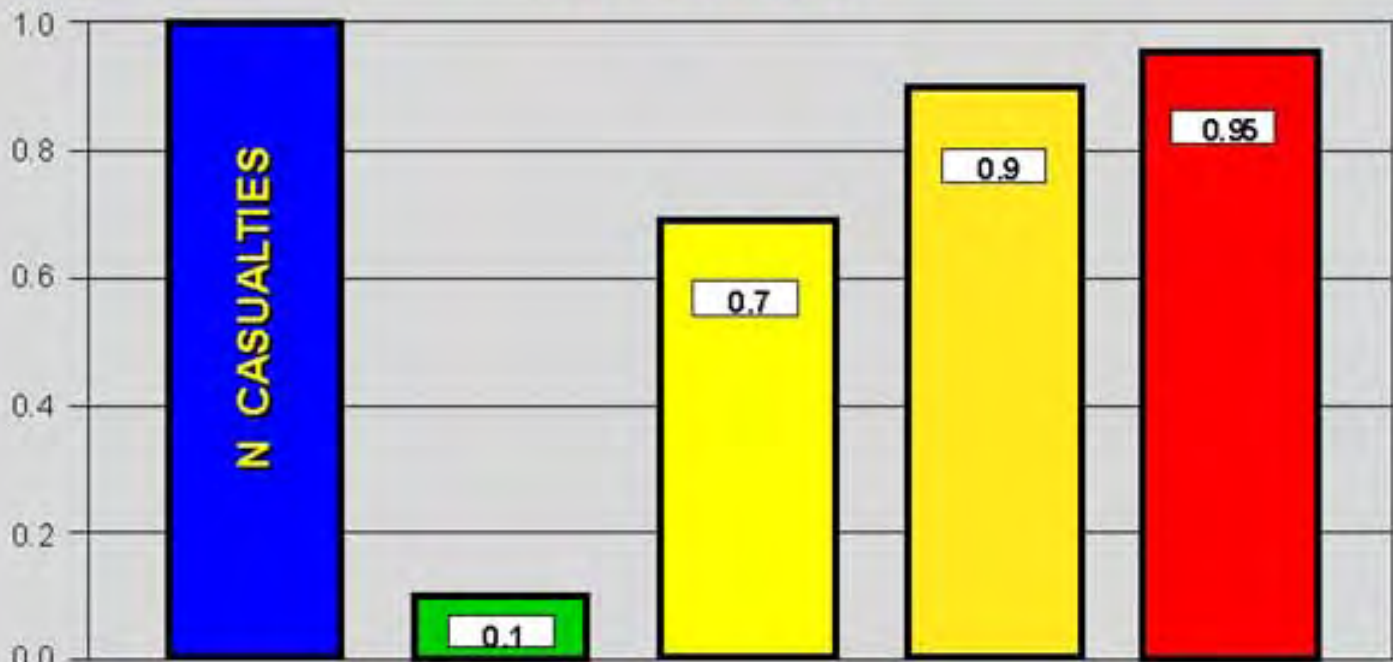
**\*Mario Bunge, Foundations of Physics, Springer-Verlag, New York, NY, 1967, p. 176..**

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# Fraction of Casualties Surviving

N = 1 - 40 million

FRACTION SURVIVING



CASUALTIES

TYPE TREATMENT RECEIVED

EXPRESSED IN FRACTION SURVIVING

- With conventional treatment
- With 1st generation P-treatment
- With 2nd generation P-treatment
- With 3rd generation P-treatment

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# FIRST STEP IN SELF-PROMOTION OF CANCER DUE TO HYPOXIA



**SINGLE CELL  
ANAEROBIC**



**SINGLE CELL  
AEROBIC\***



**MULTICELL  
AEROBIC\***  
(INCLUDES MAN)

**CENTRAL CONTROL**



**OXYGEN-RICH**

**TIME-FORWARD  
PATH AS IT  
DEVELOPED**

**CANCER CELL**



**PARTIALLY  
ANAEROBIC**



**SINGLE CELL  
AEROBIC**

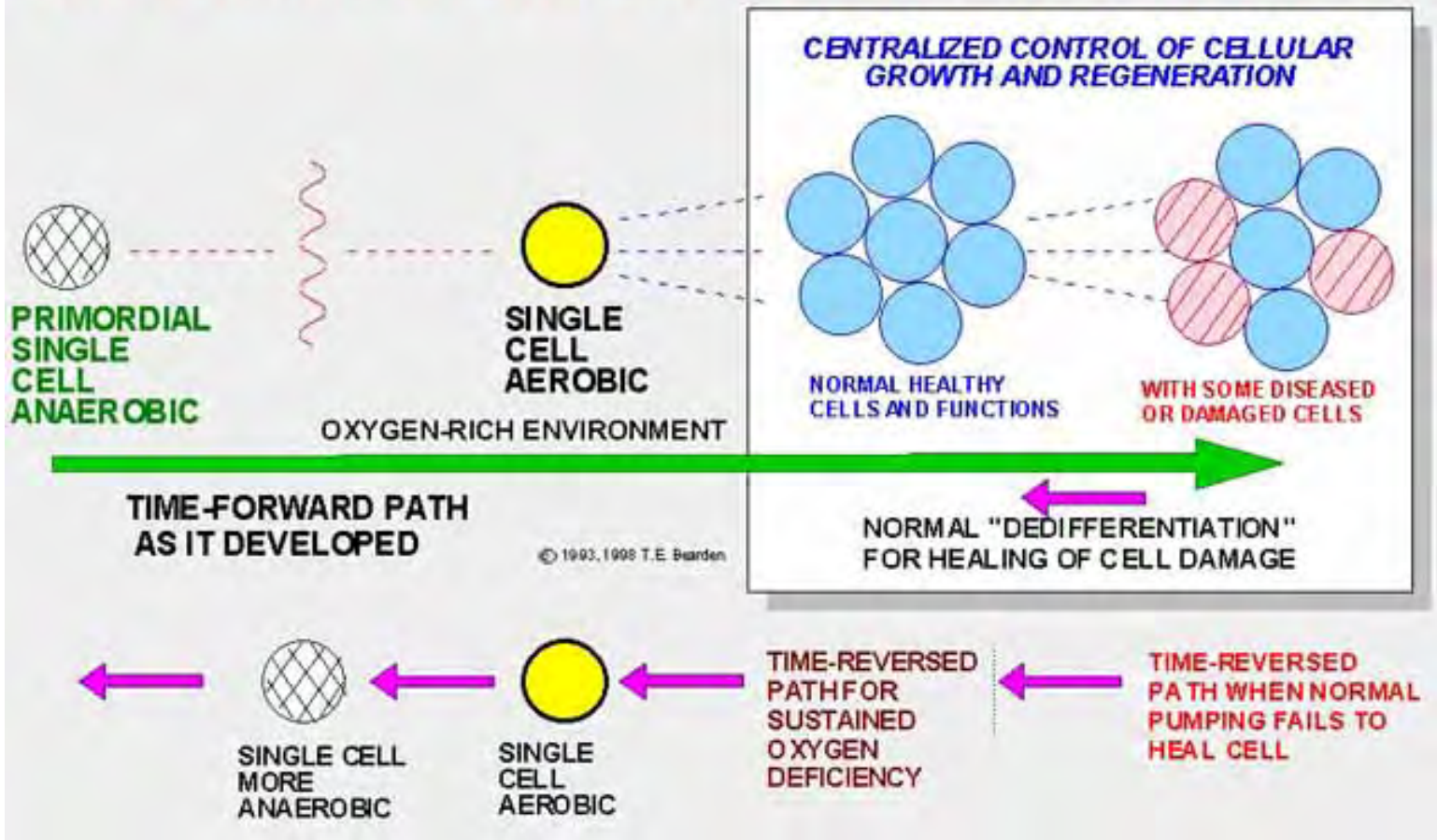
**TIME-REVERSED  
PATH FOR SUSTAINED  
OXYGEN DEFICIENCY**

**FIRST STEP IN OXYGEN-DEFICIENCY  
DEDIFFERENTIATION**

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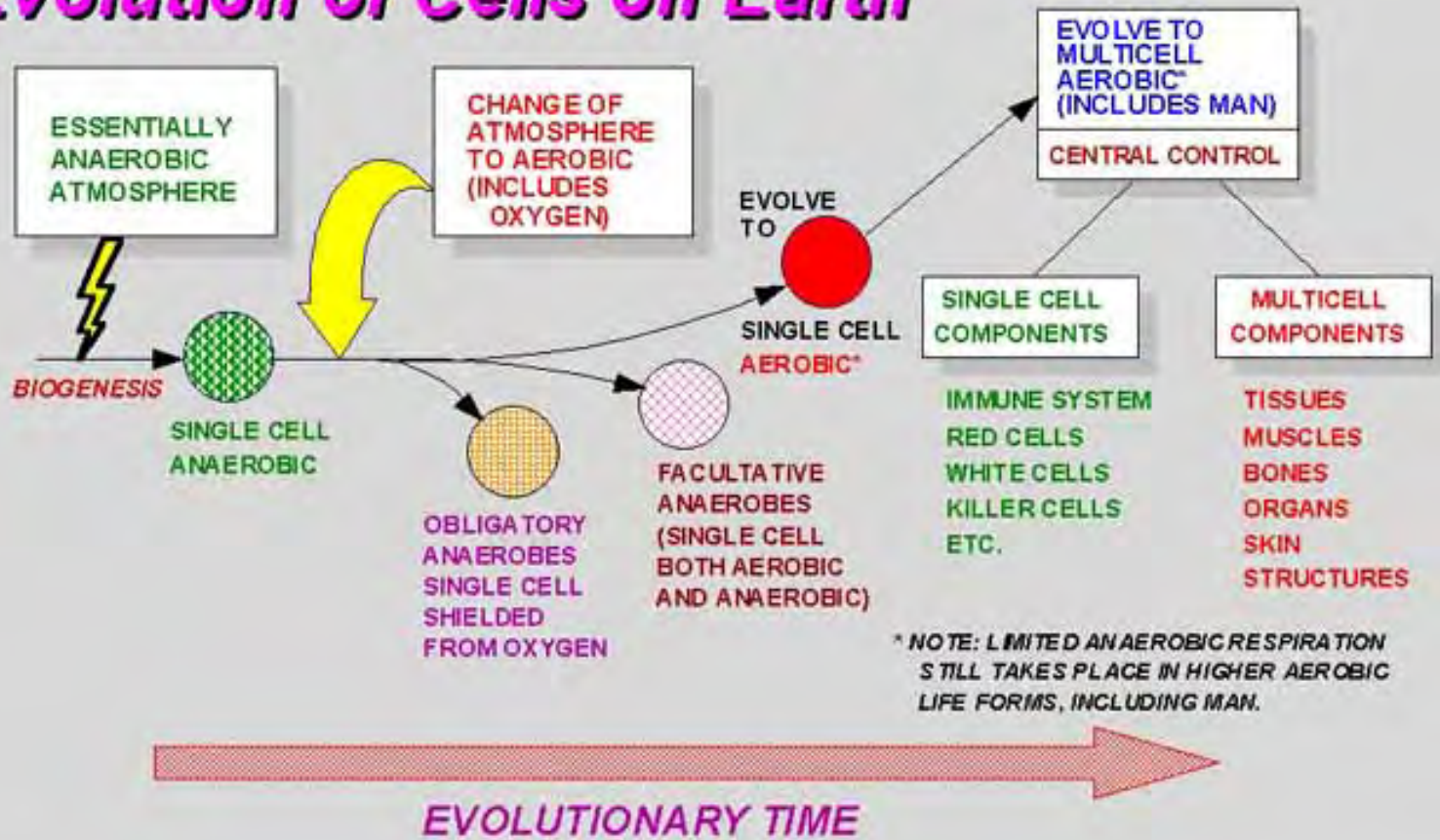


# ***Differentiation and Dedifferentiation Timelines***





# Evolution of Cells on Earth



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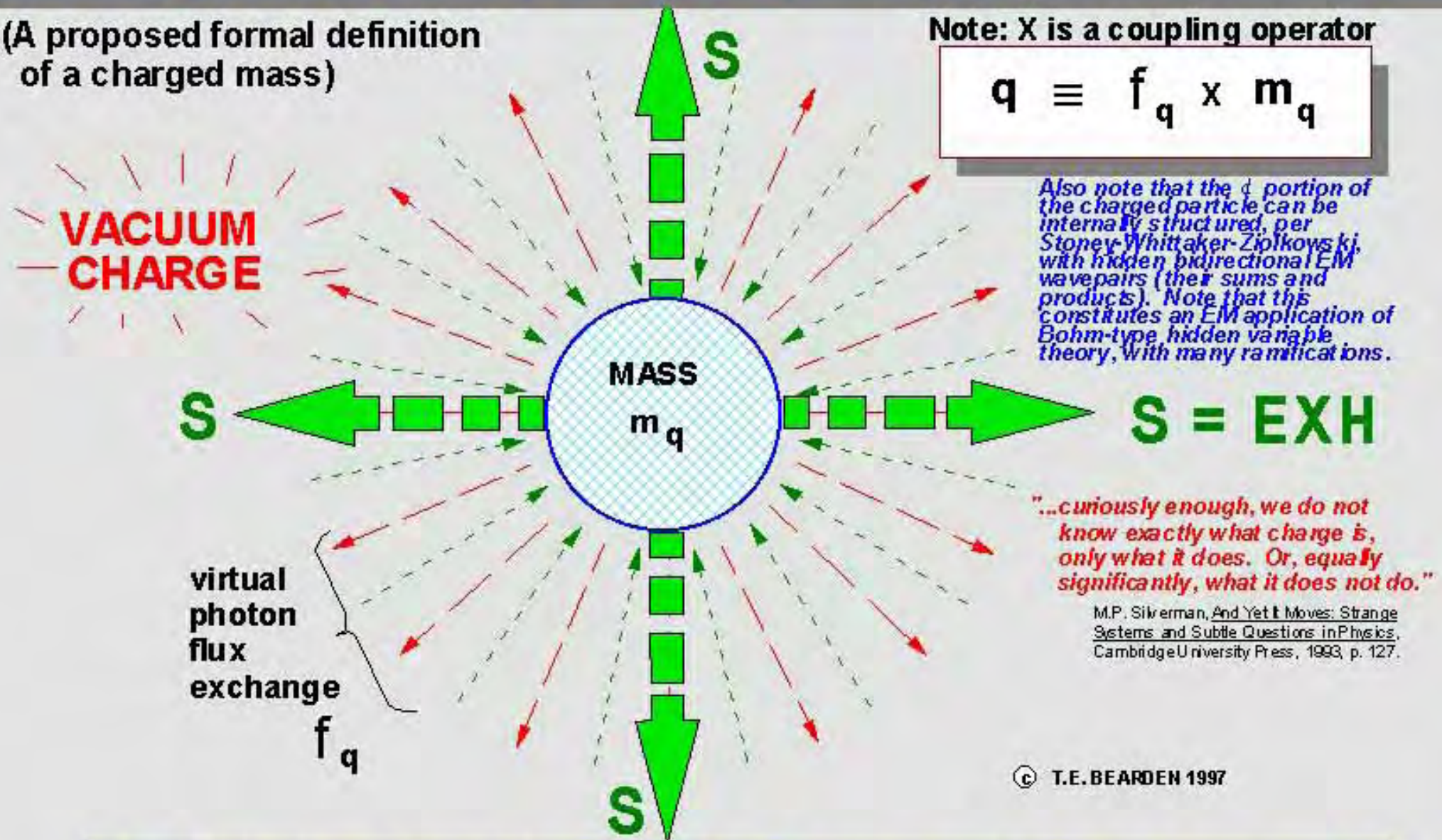
# A Charged Particle $q$ Is a Coupled System of $m$ and $\phi$

(A proposed formal definition of a charged mass)

Note:  $X$  is a coupling operator

$$q \equiv f_q \times m_q$$

Also note that the  $\phi$  portion of the charged particle can be internally structured, per Stoney-Whittaker-Ziolkowski, with hidden bidirectional EM wavepairs (their sums and products). Note that this constitutes an EM application of Bohm-type hidden variable theory, with many ramifications.



An electric charge  $Q$  consists of a massless flux component and a mass component, coupled together (interacting).  $Q$  is a broken symmetry. The mass of the charge continually and violently exchanges virtual photons with the surrounding vacuum.

**Thus  $Q$  is energetically driven by the surrounding vacuum potential, which itself is to first order just a violent virtual photon flux.**

## **The Ubiquitous Assumption: Two Asymmetrical Regaugings for Net Symmetry**



**You really need  
a Maxwell's demon,  
to do some free work.**



**Your electrodynamicist  
says he can make one,  
by regauging.**

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## **The Ubiquitous Assumption: Two Asymmetrical Regaugings for Net Symmetry**



**He says he will do the regauging for you. Hey, what a swell guy!**



**He regauges twice, and makes two Maxwell's demons equal and opposite. They won't do any net work for you!**

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## **The Ubiquitous Assumption: Two Asymmetrical Regaugings for Net Symmetry**



He diedainfully says,  
"We always do it that way!  
We *must* enforce local  
equilibrium and the second  
law of thermodynamics!".



You decide to have a  
little chat with your  
electrodynam icist!  
With friends like that,  
who needs enemies!

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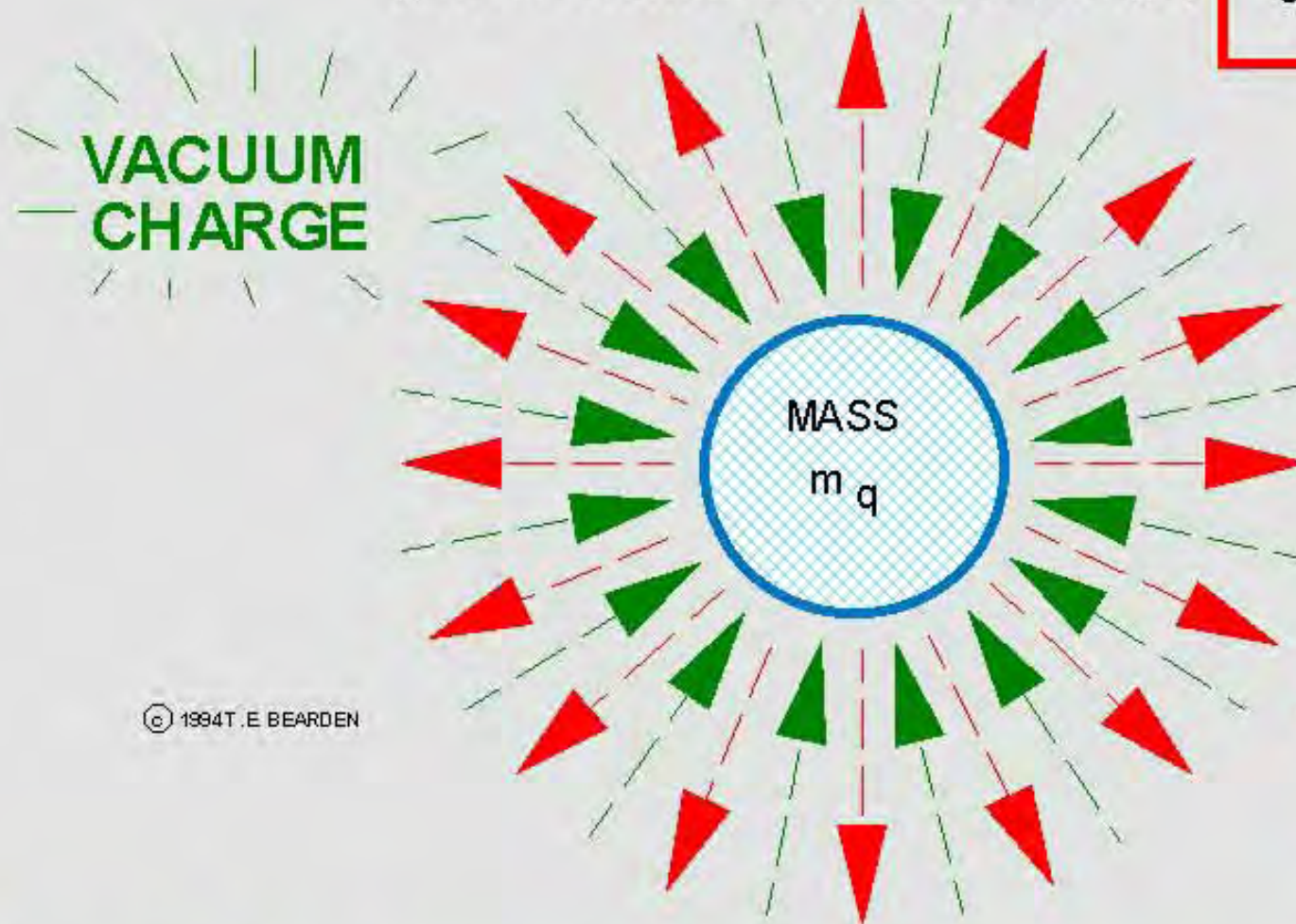


# A Charged Particle Is a Coupled System

(The first formal definition of charge)

$$\mathbf{q} \equiv \phi_q \times m_q$$

Note: X is a coupling operator



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*"...curiously enough, we do not know exactly what charge is, only what it does. Or, equally significantly, what it does not do."*

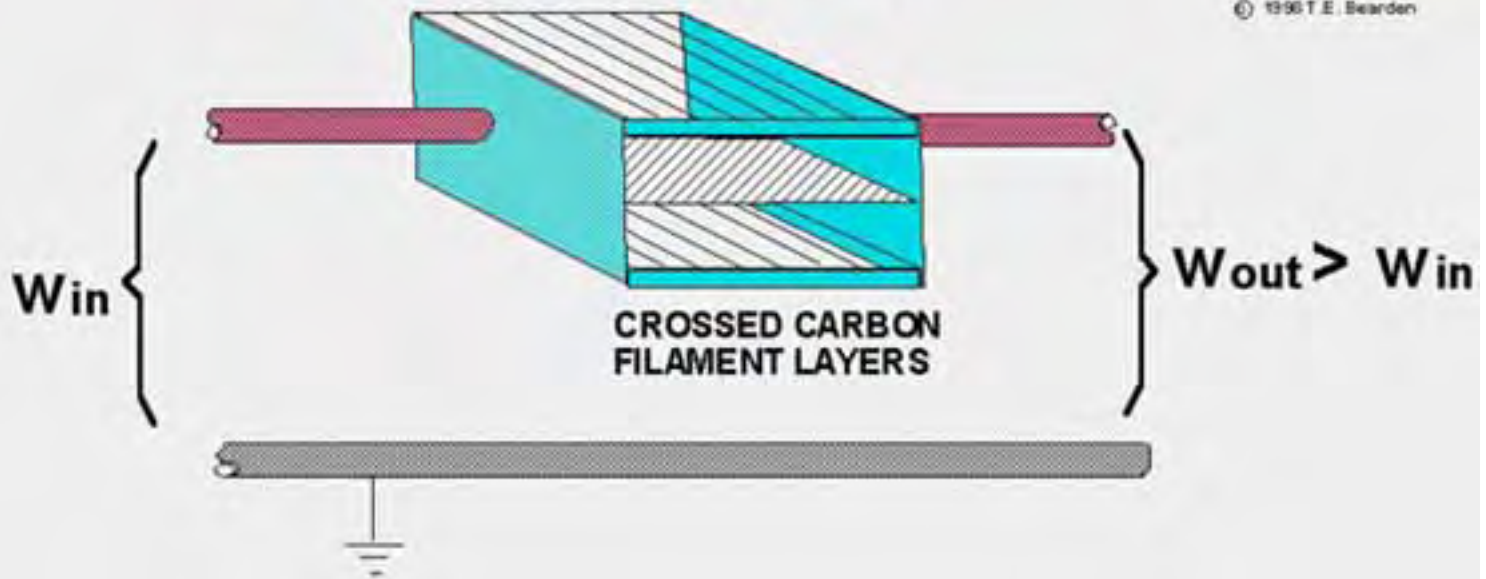
MP. Silverman, *And Yet It Moves: Strange Systems and Subtle Questions in Physics*, Cambridge University Press, 1993, p. 127.

**An electric charge  $q$  is a broken symmetry in its fierce energy exchange with the active vacuum. It coherently integrates some of the virtual energy absorbs and outputs it as Poynting energy flow.**

# Chung's Carbon Filament Negative Resistor

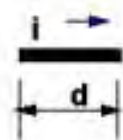
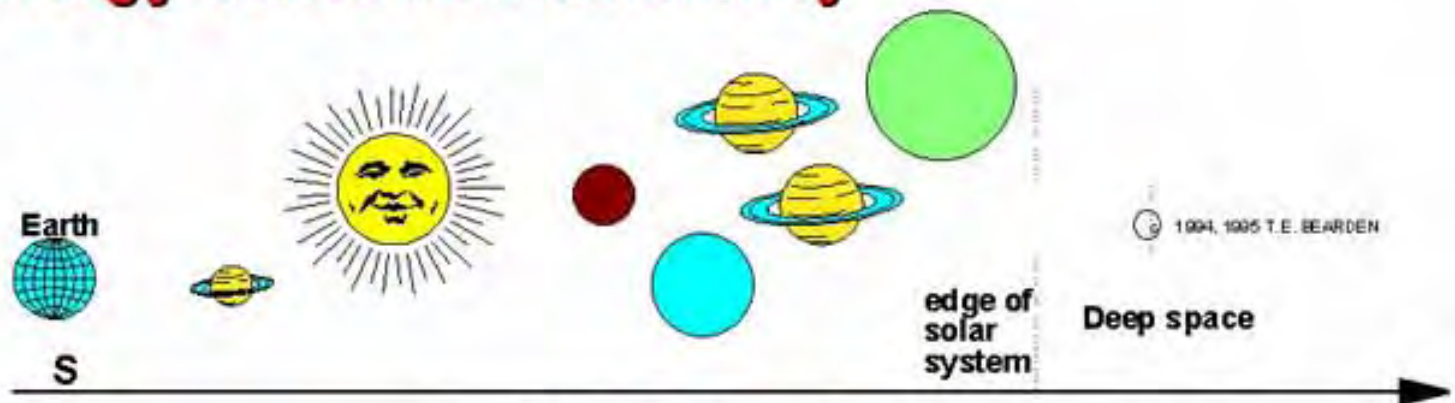
UNIVERSITY AT BUFFALO, NY

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# Typical circuit has about $10^{-13}$ energy collection efficiency



$d_i = 0.1368$  meters

Distance traveled by S in one hour is  $1.08 \times 10^{12}$  meters.

Example: 1.3 amps flowing in DC circuit, 1.8 mm diameter copper wire.  $J = 51 \text{ A/cm}^2$

S violently transports  $\phi$  provided from the source.

j  $\phi$  sluggishly transports the energy collected and dissipated in the circuit.

For the case discussed, the electron drift velocity in the circuit is about  $3.8 \times 10^{-5}$  meters/sec. So J $\phi$  moves about 0.1368 meters in one hour. Thus J $\phi$  has collected about 0.1368 meters of the  $\phi$ -filled S-tube. During that same hour, the S-flow evoked by the power source will have traveled  $1.08 \times 10^{12}$  meters. The  $\phi$  of both currents is the same. Both are involved in the same energy-filled tube. Thus S has provided and transported about  $7.89 \times 10^{12}$  times as much energy along the circuit in one hour as the j $\phi$  has been able to collect, transport, and dissipate as work in the circuit. Thus this circuit provides about  $10^{-13}$  collection efficiency.



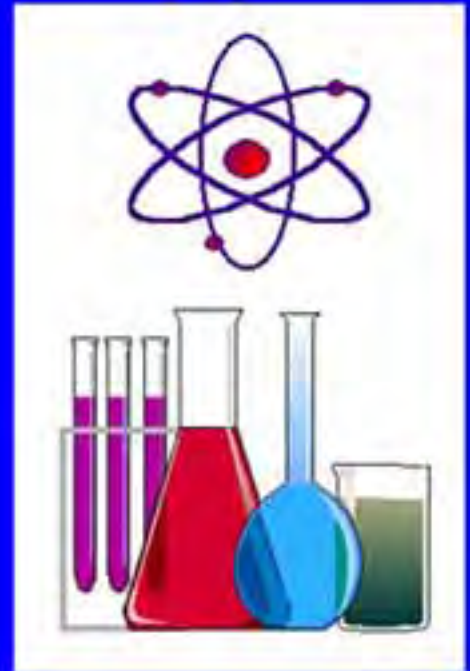
# Classical View of EM

- Potentials just mathematical conveniences
  - Not real
  - No internal structure, just magnitude
- Force fields primary, causative, can exist in space in absence of observable mass
  - All EM actions due to force fields, none when zero
  - No action at a distance
- Vacuum empty; without energy or structure
  - No locally curved spacetime
  - No gravity effects
  - No quantum effects
- Maxwell's equations complete
  - Symmetrically regauged *arbitrarily*
  - Topology dramatically reduced



# ***Curved Spacetime acts as source or sink***

- **May emit excess radiation and energy (e.g., heat)**
- **May absorb radiation and energy (e.g., cool)**
- **May transduce waves  
 $TW \Leftrightarrow LW \Leftrightarrow TDW$**
- **New energy conservation law applies**



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# **CHRONIC DISEASE PUZZLING**

- **SCIENCE REALLY DOES NOT UNDERSTAND THE MECHANISMS OF A SINGLE CHRONIC DISEASE, INCLUDING CANCER**
- **MANY TROUBLING FACTORS EXIST**
  - **MIND**
  - **STRESS**
  - **SPONTANEOUS REMISSION**
  - **PLACEBO EFFECTS**
  - **COMBINATIONS**
- **GENERATION OF THE PLACEBO EFFECT BY THE CELLULAR REGENERATION SYSTEM IS UNRECOGNIZED**



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# ***Cancer Characteristics***

- Not one disease, but a whole range
- Starts in damaged aerobic cell
- Cell shakes off body's central control
  - Starts uncontrolled division
  - Becomes a lump
- Can send forth cancer cells
  - Through blood
  - Through lymph
- Form metastases (secondary tumors)
- Often become anaerobic

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# ***Solving a Cancer Enigma***

- **An enigma has been failure of immune system to attack some tumor cells**
  - Suppressor cells may curb immune system?
  - Tumor may lack antigens normally identified by the immune system?
- ***Promotion of damaged cell to cancer is usually ordered by cellular control system***
  - *Regenerative and recovery system forces cell back toward anaerobe*
  - *First step breaks free from central growth*
  - *Control continues to recognize cell as self*

© 1992 T.E. Huxley



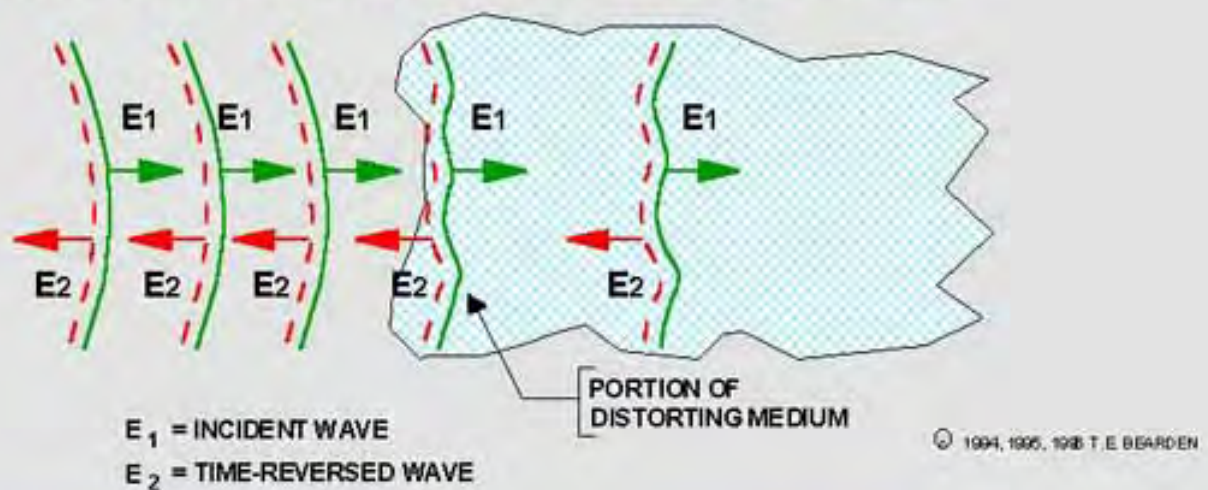
## **CANCER: CHARACTERISTICS**

- **NOT ONE DISEASE BUT A WHOLE RANGE**
  - **STARTS IN ORDINARY (AEROBIC) CELL**
  - **CELL SHAKES OFF BODY'S DICTATORIAL CONTROL \***
  - **STARTS UNCONTROLLED DIVISION**
  - **BECOMES A LUMP**
  - **CAN SEND FORTH CANCER CELLS**
    - **THROUGH BLOOD**
    - **THROUGH LYMPH**
  - **THESE FORM METASTASES (SECONDARY TUMORS)**
  - **OFTEN BECOME ANAEROBIC (NON-OXYGEN USING)**
  - **ENIGMA IS FAILURE OF IMMUNE SYSTEM TO ATTACK SOME TUMOR CELLS**
    - **SUPPRESSOR CELLS MAY CURB IMMUNE SYSTEM**
    - **TUMOR MAY LACK ANTIGENS NORMALLY IDENTIFIED BY THE IMMUNE SYSTEM**
- \*R&R system forces cell back toward anaerobe*

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# Nonlinear Optics Distortion Correction Theorem



"If a scalar wave  $E_1(r)$  propagates from left to right through an arbitrary but lossless dielectric medium, and if we generate in some region of space [say near  $z = 0$ ] its phase conjugate replica  $E_2(r)$ , then  $E_2$  will propagate backward from right to left through the dielectric medium, remaining everywhere the phase conjugate of  $E_1$ ."



# ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (1)***

- **Nucleon interchange**
  - Changes neutron into proton and vice versa
  - At high rate (flat spacetime assumed)
- **Statistics become skewed due to curved ST**
- **Can bias statistics toward either neutron or proton end**
  - Biases toward transmutation of elements along isomer chains
  - Concept of "isomer" is vastly expanded

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# ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (2)***

- **Normal dynamics (impulses) may reverse**
  - *Like charges attract, unlike charges repel*
  - *Positive charges cluster (are drawn together)*
  - *H<sup>+</sup> ions (protons) may form quasi-nuclei*
  - *Nucleus coulomb barrier becomes assistant*
- **Many "impossible" reactions now possible**
  - *Quark access and quark flipping by EM*
  - *Ion clustering*
  - *Positive charges as phase conjugate mirrors*
  - *Time-density waves and time-energy charging*

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# ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (3)***

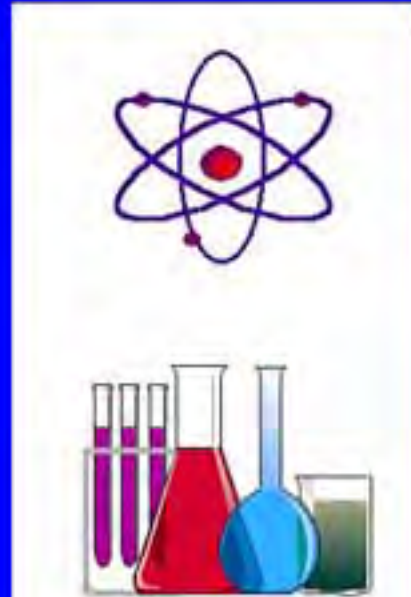
- **Not observed until time-energy charging has become substantial**
  - *Time delay (hours, days)*
  - *Transduction of LW --> TW involved*
  - *Specific time-charging history of detectors is involved in whether they detect or not*
  - *Longitudinal EM waves become significant*
- **Curved spacetime can act as source or sink**
  - *May emit excess radiation*
  - *May absorb excess radiation*

 1999 T. E. Darden

## ***In Time-Reversed Zone: Nuclear reactions are biased***

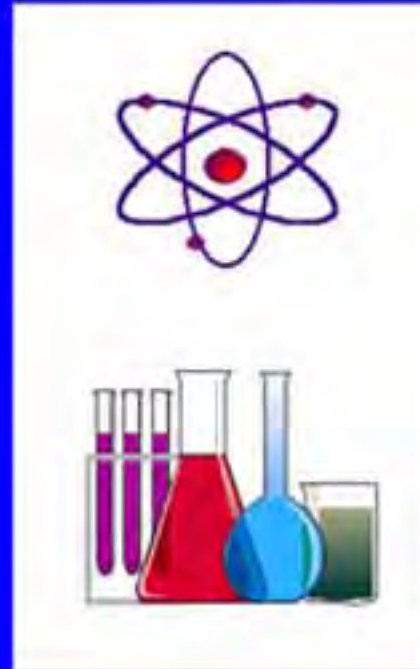
- In normal flat ST,  $n \Leftrightarrow p$  at high rate
- Curved ST skews statistics
- Biases to either n or p
- Biases to transmutation along isomer chain
- "Isomer" concept greatly expanded

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## ***In Time-Reversed Zone: Dynamics may be reversed***

- Like charges may attract and unlike charges repel
- Coulomb barrier becomes Coulomb assistant
- Clusters like charges and forms artificial nuclei
- "Impossible" nuclear reactions at low energy
- Time-density interactions

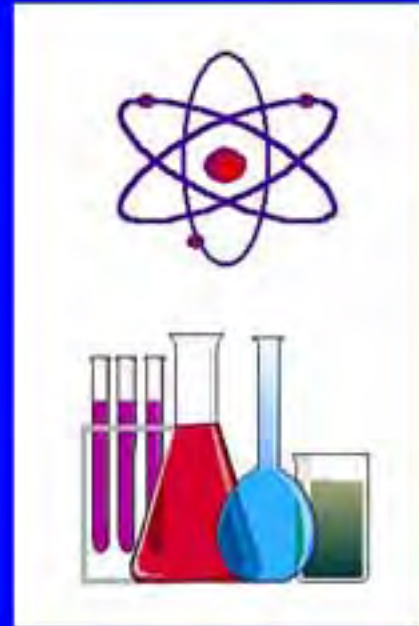




# ***Time-Reversed Zone:***

## ***Significant only after time-density charging***

- **Hours, for "fast" onset**
- **Days, for "slower" onset**
- **Transduction involved for  
TW  $\Leftrightarrow$  LW  $\Leftrightarrow$  TDW**
- **Time-history of each  
detector is significant**
- **Longitudinal EM waves  
become significant**



# **A New Conservation of Energy Law**

- Physics conserves total "energy and mass-energy"
- Now also must consider "time-energy"
- Conserve total mass-time-energy (spatiotemporal energy)
- Let  $E_T$  = total energy,  $E_M$  = mass energy,  $E_E$  = ordinary energy, and  $E_t$  = time energy. Then

$$E_T = E_E + E_M + E_t$$

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$$(kE_t \Rightarrow E_E > 0) \Rightarrow E_T > (E_M + E_E)$$

- If some  $E_t$  is transduced into  $E_E$ , the experiment will violate the old spatial mass-energy conservation law



# QUESTIONS ON CARCINOGENS AND EM RADIATION



## ■ UNRESOLVED QUESTIONS ON EM RADIATION

- DOSAGES
- ACTIVE MECHANISMS
- REPLICATION DIFFICULTIES
- MEASUREMENT DIFFICULTIES
- WHERE, WHEN, HOW ILL EFFECTS OCCUR

## ■ SIMILAR QUESTIONS EXIST ABOUT EVERY CARCINOGEN

## ■ SCIENCE REALLY DOES NOT UNDERSTAND THE MECHANISMS OF A SINGLE CHRONIC DISEASE, INCLUDING CANCER

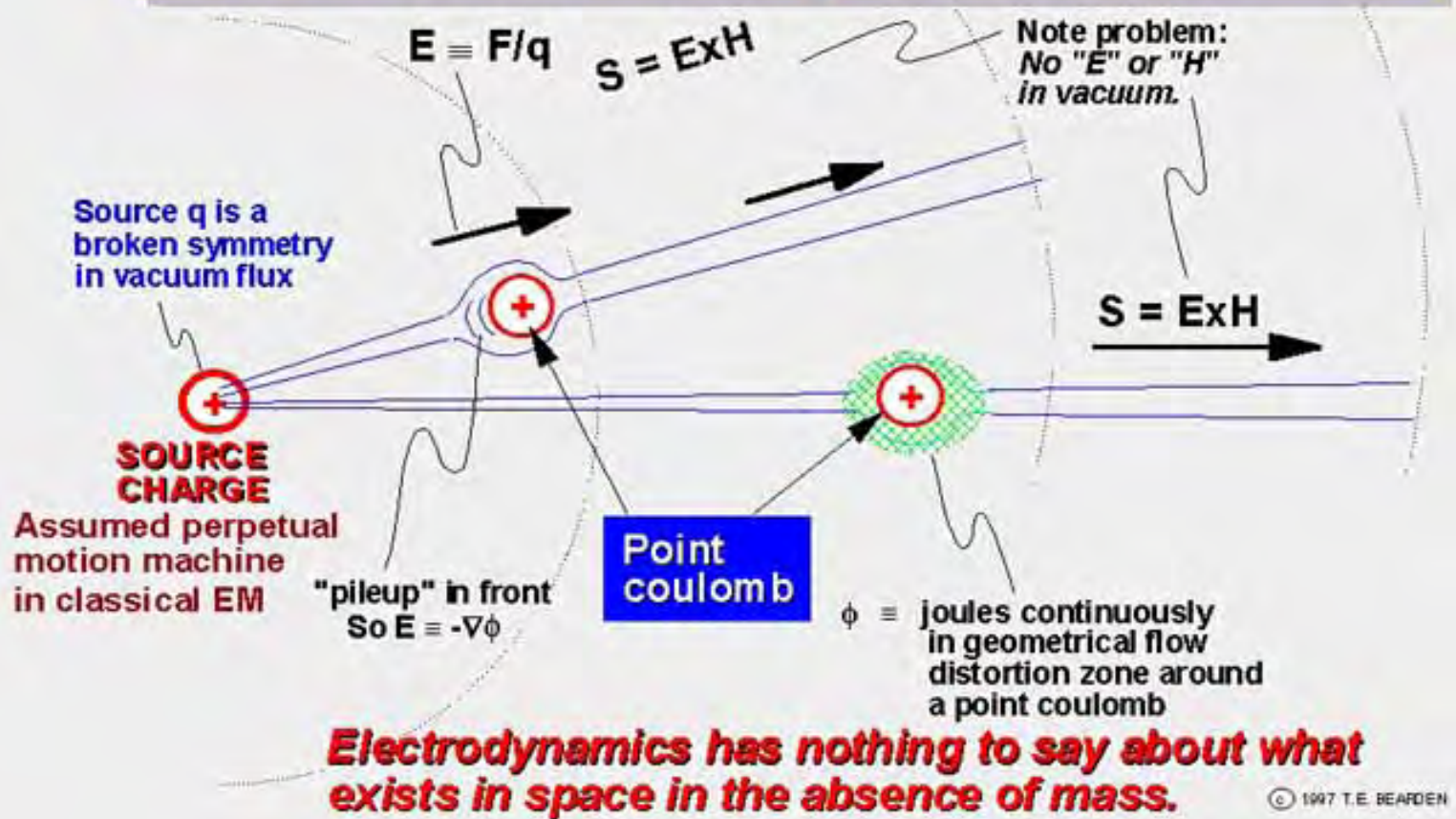
- FACTORS SUCH AS MIND, STRESS, SPONTANEOUS REMISSION, PLACEBO EFFECTS, AND COMBINATIONS OF FACTORS ARE PARTICULARLY TROUBLESOME
- GENERATION OF THE PLACEBO EFFECT BY THE REGENERATION & RECOVERY SYSTEM IS UNRECOGNIZED



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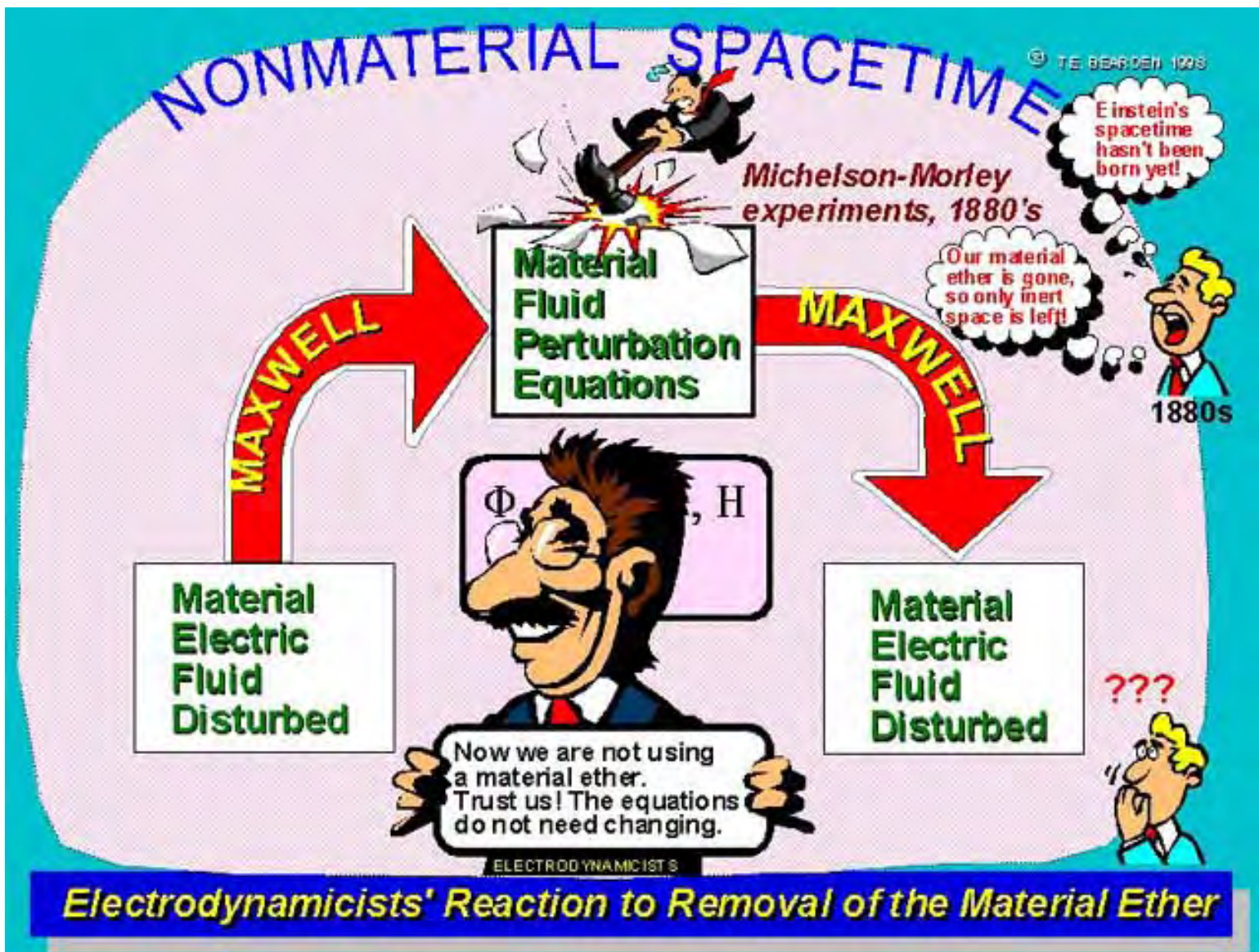
# **As defined, fields and potentials only exist in and on charged matter**



# Serious flaws and errors in classical EM theory.

1. Eliminates the Internal EM Inside the Scalar Potential.
2. No Definition of Electrical Charge or of Scalar Potential.
3. Equations Still Assume Material Ether Per Maxwell (Unchanged).
4. Use of Force Fields in Vacuum is False (and Known to be So).
5. Treats Charge  $q$  as Unitary Instead of Coupled System  $q = \phi[q]m(q)$ .
6. Confuses Massless Potential Gradients as Forces (See #3, #4).
7. Does Not Utilize Mass as a Component of Force (See #23).
8. Erroneously Assumes EM Force Fields as Primary Causes.
9. Topology of EM Model Has Been Substantially Reduced.
10. Does Not Include Quantum Potential or Action at a Distance.
11. Does Not Include Superluminal Velocity of Inner EM Components.
12. Does Not Utilize Extended Near-Field Coulomb Gauge Effects.
13. Does Not Include EM Generatrix Mechanism for Time Flow.
14. Does Not Unify Photon and Wave Aspects (Requires 7-D Model).
15. Does Not Include Electron Spin and Precession (See #19, #24).
16. Treats EM Energy As Existing In "Chunks," Instead of as Flow.
17. Confuses Energy and Energy Collection (See #16).
18. Discards Half of Every EM Wave in Vacuum (See #22).
19. Erroneously Uses Transverse Vacuum Wave; It's Longitudinal.
20. Arbitrarily Regauges Maxwell's Equations to Eliminate Overunity.
21. Omits Phase Conjugate Optics Effects (The Rule in Internal EM).
22. Does Not Include EM Cause of Newtonian Reaction Force.
23. Erroneously Assumes Separate Force Acting on Separate Mass.
24. Confuses Detected Electron Precession Waves as Proving Transverse EM Waves in Vacuum (Remnant of Old "EM Fluid" Concept).
25. Due to Error in String Wave, Omits the Ubiquitous Antiwave.
26. Assumes Equilibrium; Not True Unless Include Vacuum Interactions.
27. Higher Topology Required, to Model Electromagnetic Reality.
28. Lorentz surface integration discards Poynting energy transport.
29. Has nothing at all to say about form of EM entities in massless space.
30. Eliminates the infolded general relativity using EM-force as curve agent.
31. Does not include longitudinal EM waves as time domain oscillations.
32. Does not include EM mechanism that generates time flow and flow rate.



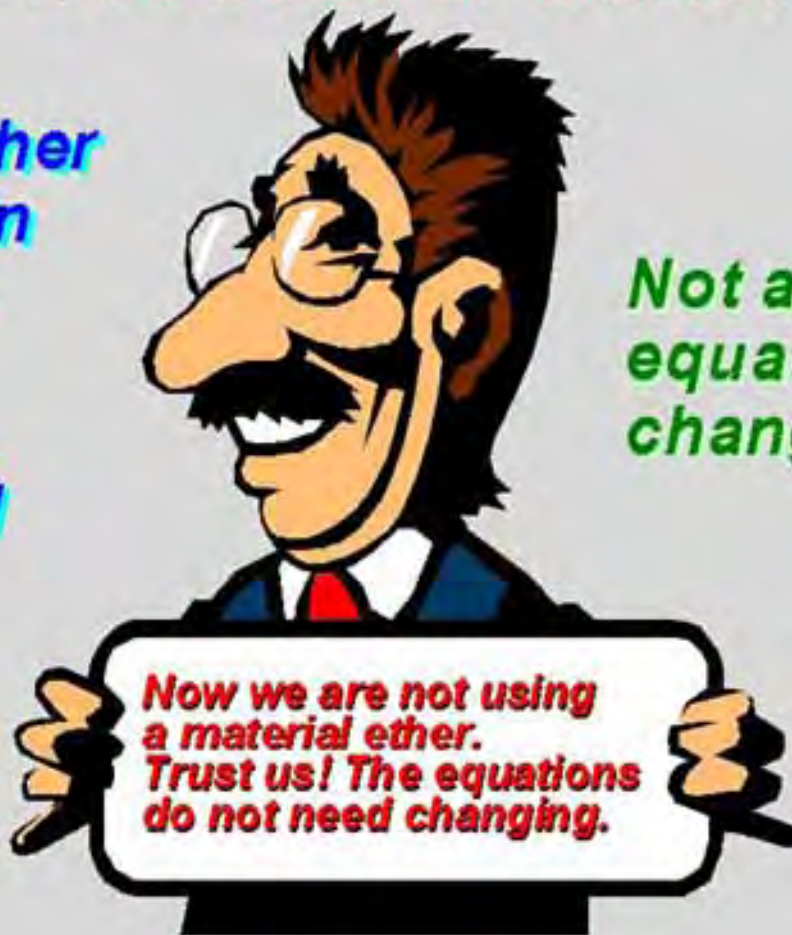


# REACTION TO LOSS OF MATERIAL ETHER

**Material Ether  
Assumed in  
Equations**

**Potentials,  
Fields, and  
Waves  
Assumed  
Material**

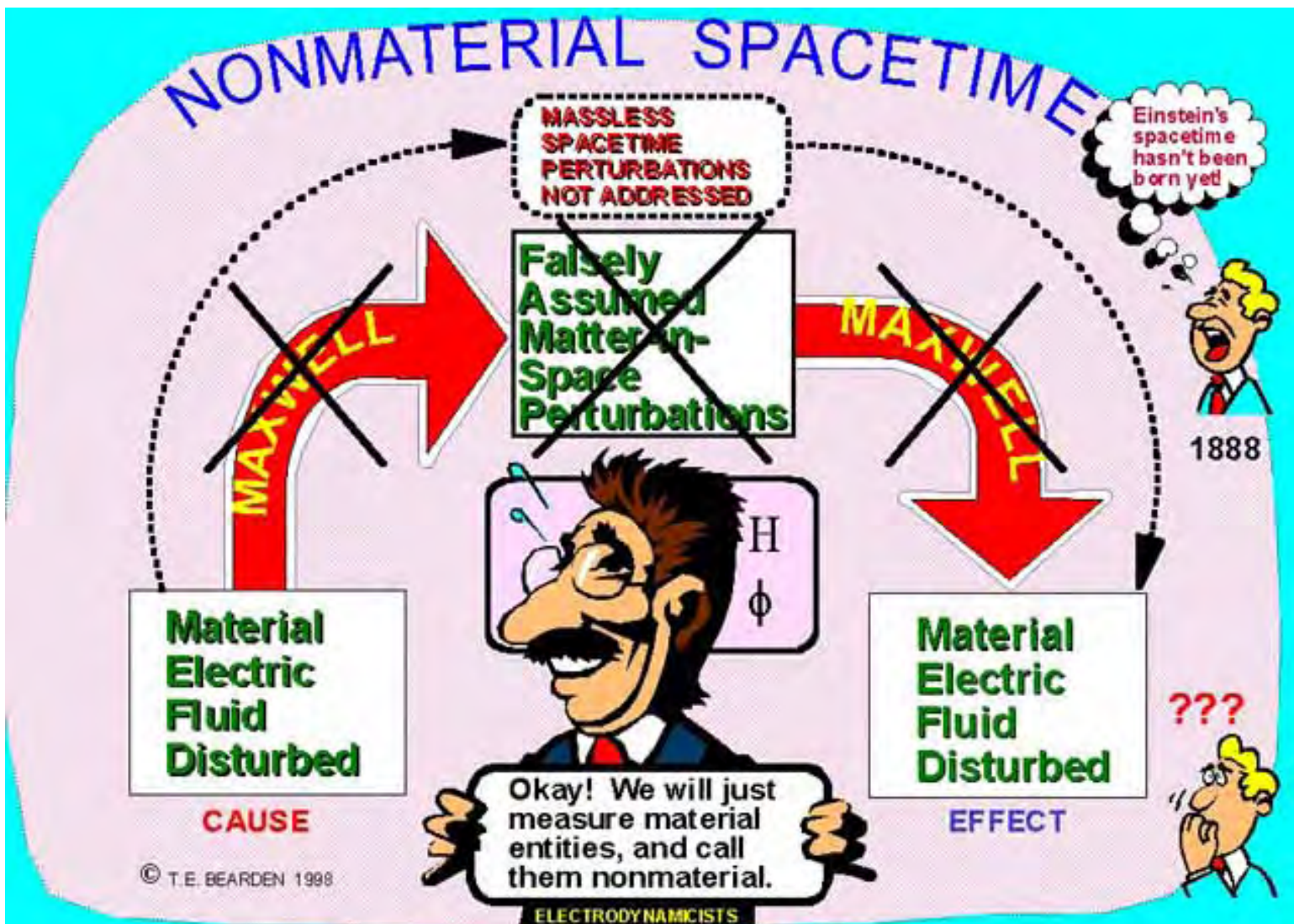
**Not a single  
equation was  
changed!**



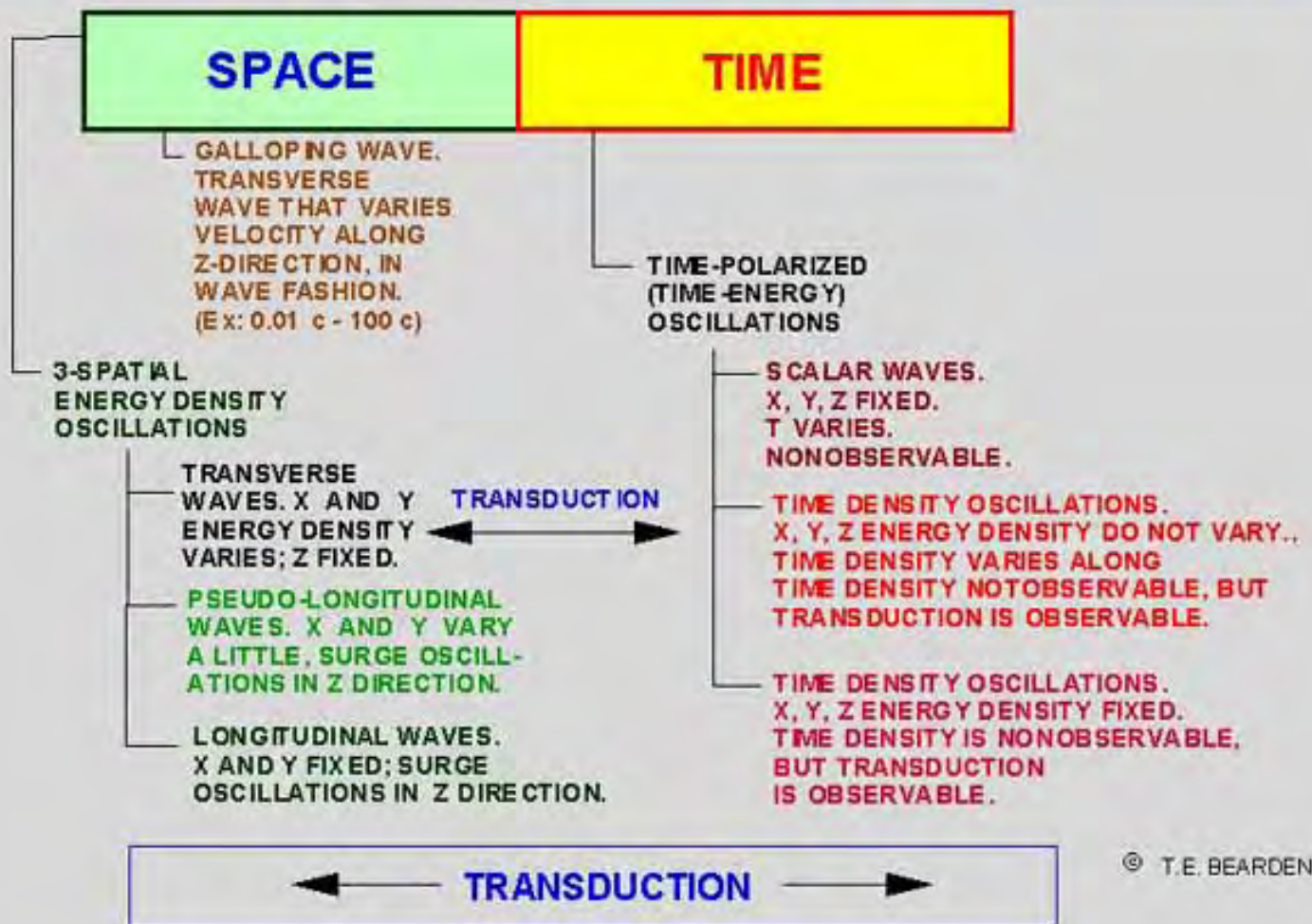
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**ELECTRODYNAMICISTS**



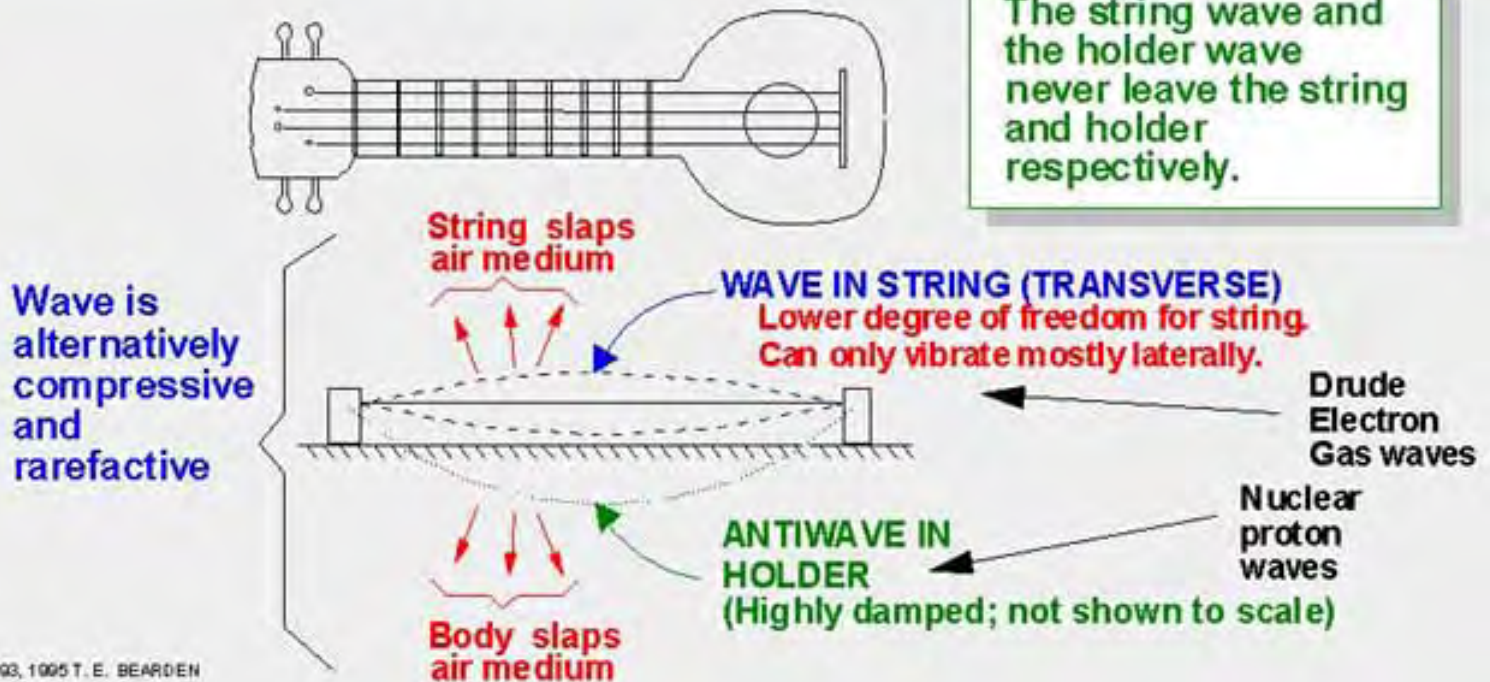


# Some EM Waves in Spacetime

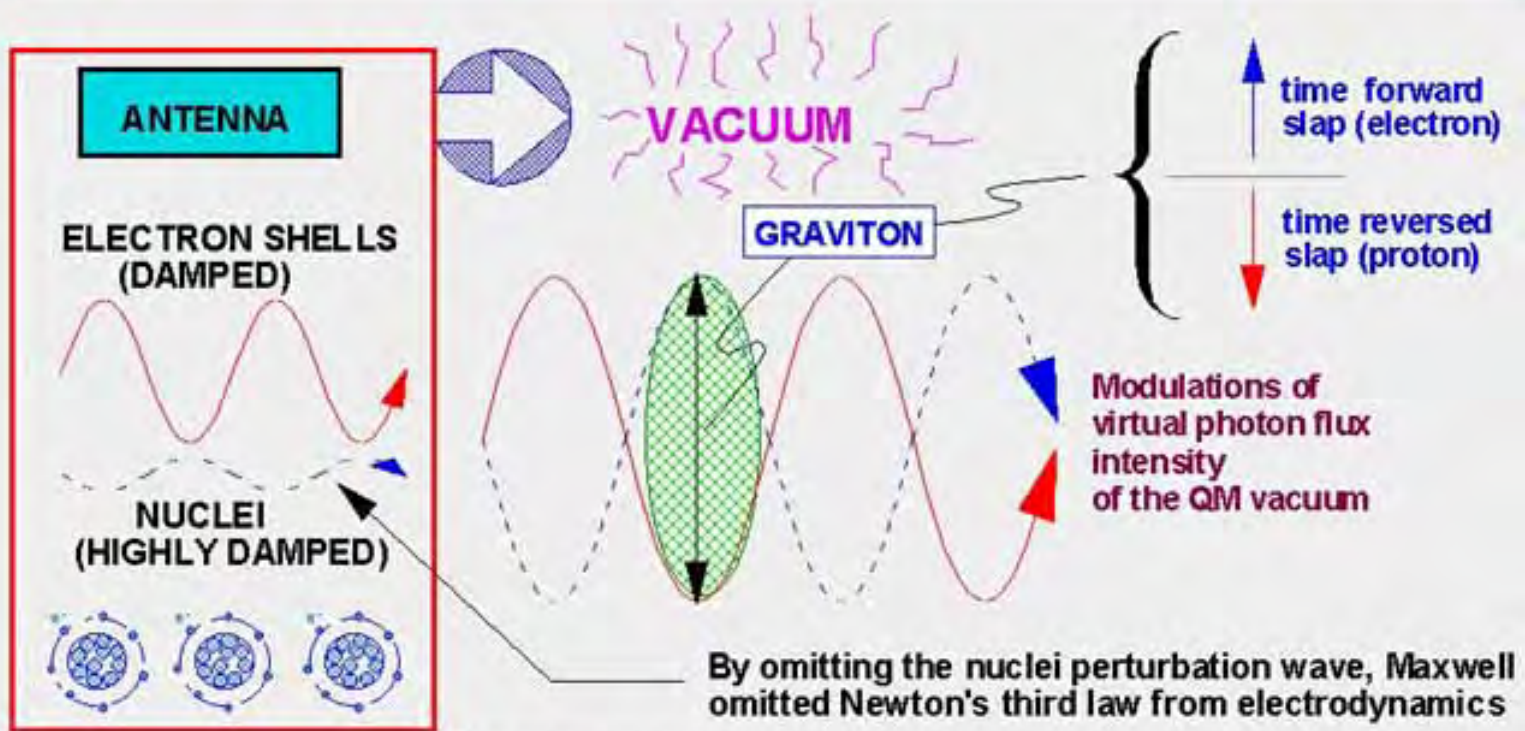




# Air Medium Disturbances Generated When Air is Perturbed by a Plucked Taut String



# Launching a Spacetime Perturbation ("EM Wave") from a Wire Antenna



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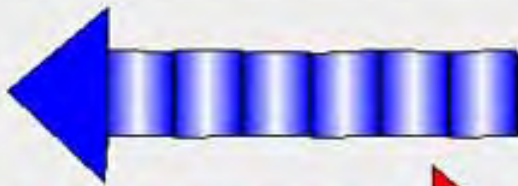
# Phase Conjugate Wavepairs Produce New Waves



**TRANSVERSE EM WAVE PLUS  
PHASE CONJUGATE REPLIC A WAVE**



**LONGITUDINAL EM SURGE WAVE**



**LONGITUDINAL EM WAVE PLUS  
PHASE CONJUGATE REPLIC A WAVE**



**TIME DENSITY WAVE**

*Oscillates rate of flow of time  
about some average value*

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# Scalar Electromagnetics (Energetics) View of EM

- Potentials real; primary causes of EM phenomena
  - Force fields made by differentiations of potentials
  - Force fields are effects, not primary causes
  - Force fields exist only in, on mass particles
- Actions due to potentials and their interference
  - Action at a distance or locally
  - Quantum potential and hidden variables
- Locally curved spacetime, engineerable by EM
  - Gravity effects not necessarily negligible
  - Strong EM force or time used as agent of curvature

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# Scalar Electromagnetics (Energetics) View of EM (Cont'd)

- Potentials have internal structure
  - Stoney/Whittaker structure
  - Longitudinal EM phase conjugate wavepairs
  - Each wavepair is a time-polarized EM wave
- Vacuum EM is a potential and has microstructure
  - Stoney-Whittaker biwaves/t-polarized waves
  - Fluctuations exhibit chaos
- Spacetime  $\equiv$  Vacuum  $\equiv$  Potential  $\equiv$  Flux

T. E. SEARDEN 1984, 1989





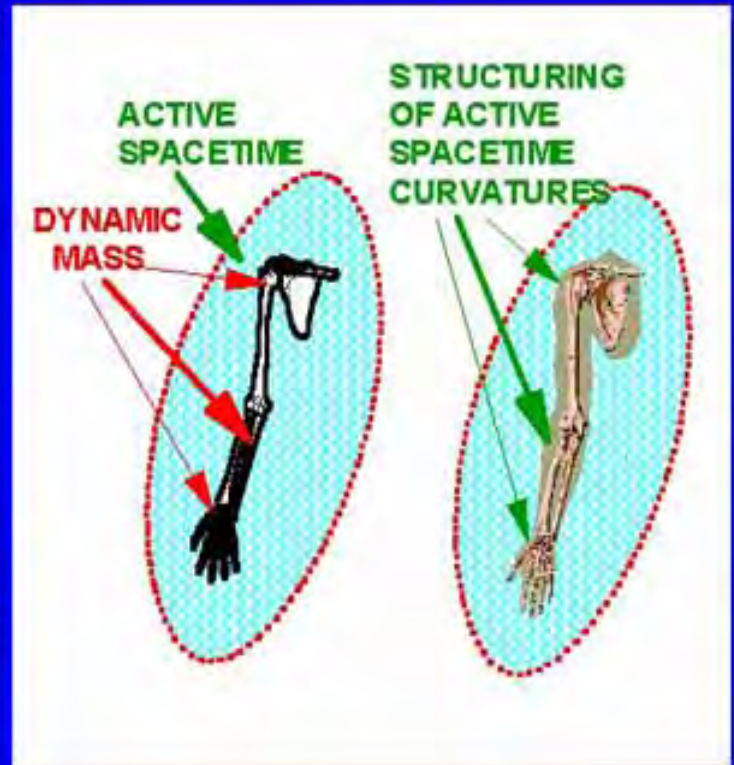
# **Scalar Electromagnetics (Energetics) View of EM (Cont'd)**

- Statistics may have hidden order (already chaotic)
- Uses spacetime curvature engines to alter matter (inside-out or outside-in)
- Engineerable EM mechanism generates rate of flow of a mass through time
- Quantum potential with specific QP can be used for instant action at a distance

# Extended General Relativity Principle

- "All levels of energy structures and all levels of time structures mold spacetime geometry.
- This is called a *vacuum engine* (spacetime engine).
- Spatial and temporal structuring act upon mass at all levels.
- This produces *templates* of forces, for translations and stresses."

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## Extension of Work-Energy Theorem

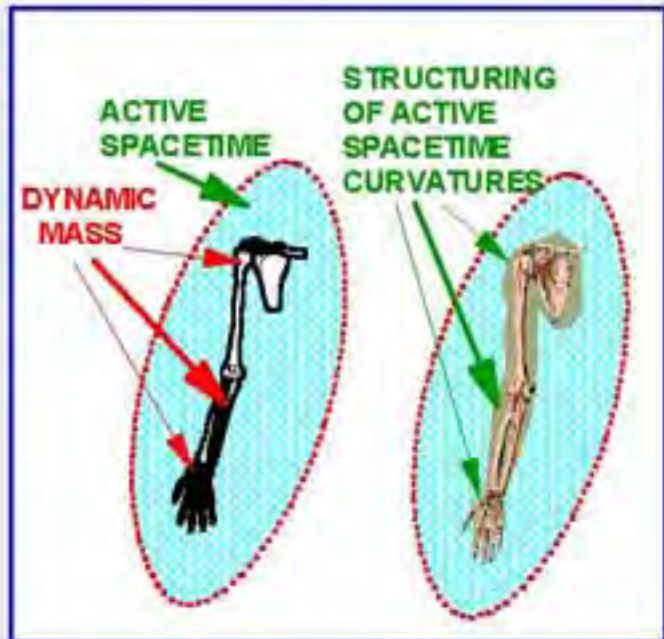
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- Theorem:  $W = k_f - k_i = \Delta k$  [1]
- $k$  must be interpreted not as energy per se, but as *collected/collecting* energy.
- The reaction cross section  $\lambda$  for the collecting process must be included.
- Extension:  $W = \lambda (k_f - k_i) = \lambda \Delta k$  [2]
- Normally  $\lambda \leq 1$ , as for elastic collision or Stokes emission.
- However,  $\lambda > 1$  is now possible, for processes which asymmetrically self-regauge. An example is Letokhov's negative absorption of the medium.
- Working models are the Patterson Power Cell<sup>®</sup> and Lawandy lasing without population inversion.

# MTW's General Relativity Principle

- "Space acts on matter, telling it how to move."
- In turn, matter reacts back on space, telling it how to curve."

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# ***Use of General Relativity (GR) in Particle Physics***

- GR seldom used in particle physics
- In cold fusion, Matsumoto\* has applied general relativity
- Consistent with important cold fusion results
- Used spacetime (ST) curvature by energy density
- Matsumoto did not utilize:
  - Longitudinal EM waves
  - Time density waves
  - Time density curvatures of ST (gain =  $9 \times 10^{16}$ )

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\* T. Matsumoto, "Mechanisms of Electro-Nuclear Collapse,"  
Proc. ICCF-7, Vancouver, BC, Canada, Apr. 1998, p. 98





# THE MISSING INFOLDED ELECTRODYNAMICS



*Maxwellian electrodynamics has nothing at all to say about EM entities in space or their form*

**Material  
Electric  
Fluid  
Disturbed**

**MATTER-TO-MATTER TRANSFORM**

**Material  
Electric  
Fluid  
Disturbed**

**MATTER-TO-SPACETIME  
TRANSFORMATION**

**INFOLDED INSIDE  
MAXWELLIAN EM  
AS HIDDEN EM  
VARIABLES**

**SPACETIME-TO-MATTER  
TRANSFORMATION**

**INTERESTED SPACETIME CURVATURES  
(VACUUM ENGINES)  
INFOLDED GENERAL RELATIVITY**

**EINSTEIN'S  
SPACETIME**

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# **Infolded Engines: Excluded by Present Physics**

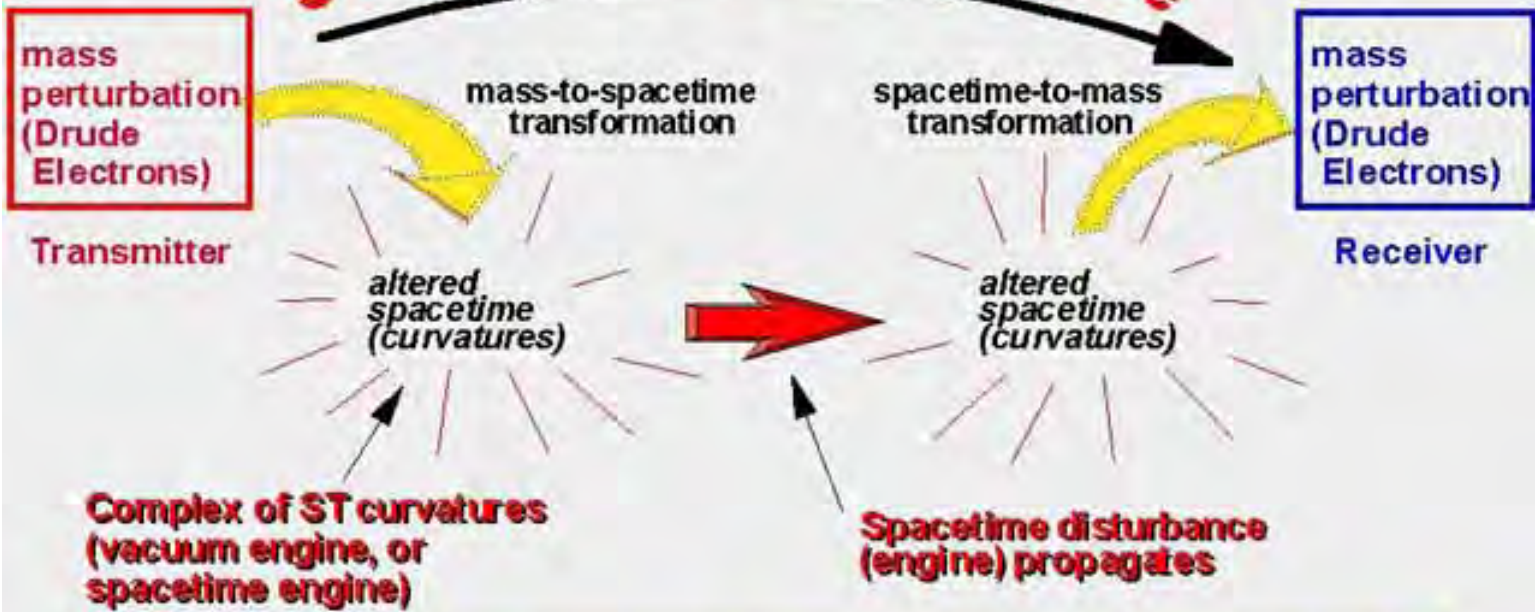
- ***The infolded dynamics of EM systems are not considered in general relativity, electromagnetics, or quantum mechanics***
- ***None of these disciplines include such spacetime curvature engines (vacuum engines)***
- ***Thus GR, EM, and QM cannot be unified, since ST curvature engines are where the unification mainly occurs***

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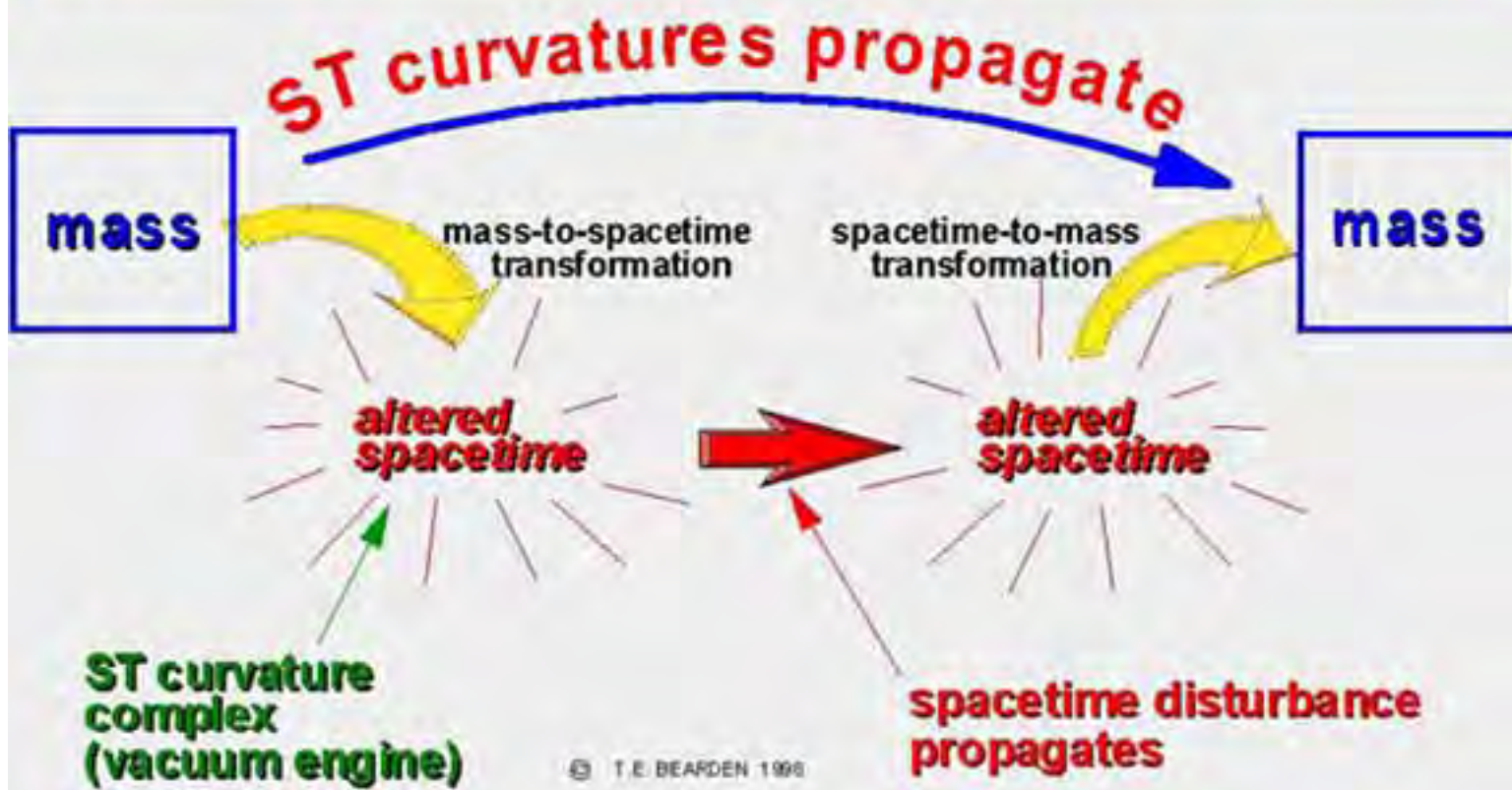
# ST curvatures propagate

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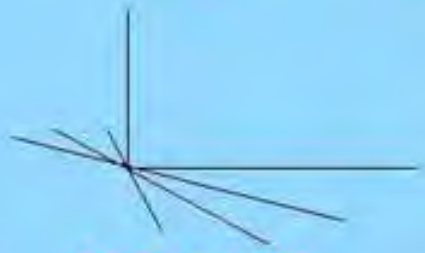
The *mass-to-mass transform* contains two hidden infolded transforms: (i) the *mass-to-spacetime transform* and (ii) the *spacetime-to-mass* transform. What is transmitted and propagates in space is a *spacetime perturbation*.

# **Mass curves and structures spacetime; ST curvatures change and structure mass**

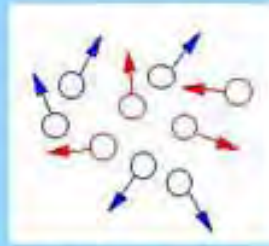




# At Infinite Velocity: *Each Is Every Other*



**SPACETIME**



**VIRTUAL  
PARTICLE  
FLUX**



**POTENTIAL**



**MIND AND  
MIND LEVELS**



**MASS**

**PLANET**



**LIVING ORGANISMS**

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# **Lisitsyn's Report: Brain Code Broken**



- ★ **THEORY DEVELOPED AND FITTED**
- ★ **HYSTERESIS MEMORY LOOP**
- ★ **CONTROLLED EM INDUCTION**
  - **IMAGES**
  - **SENSATIONS**
  - **PREDETERMINED EMERGENCE**
- ★ **23 EEG BANDS**
  - **UP TO  $8.1 \times 10^{20}$  HZ**
  - **11 INDEPENDENT CHANNELS**

© 1970, 1985, 1991 T.E. BEARDEN

S.K. Lisitsyn, "New Approach to the Analysis of Electroencephalograms,"  
DDC Report AD73005, p. 16-25.

# ***Lorentz Closed Surface Integration***

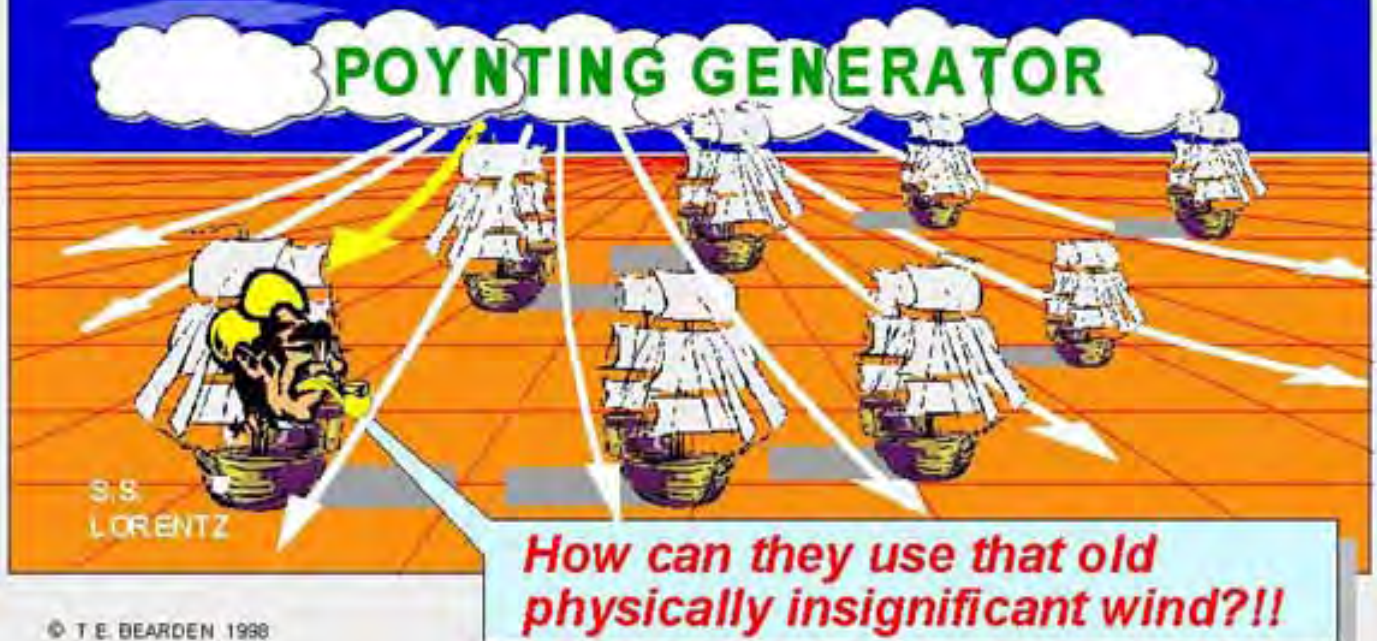
**Selects only the locally divergent portion of the Poynting energy flow that powers the component.**





## ***Lorentz Closed Surface Integration***

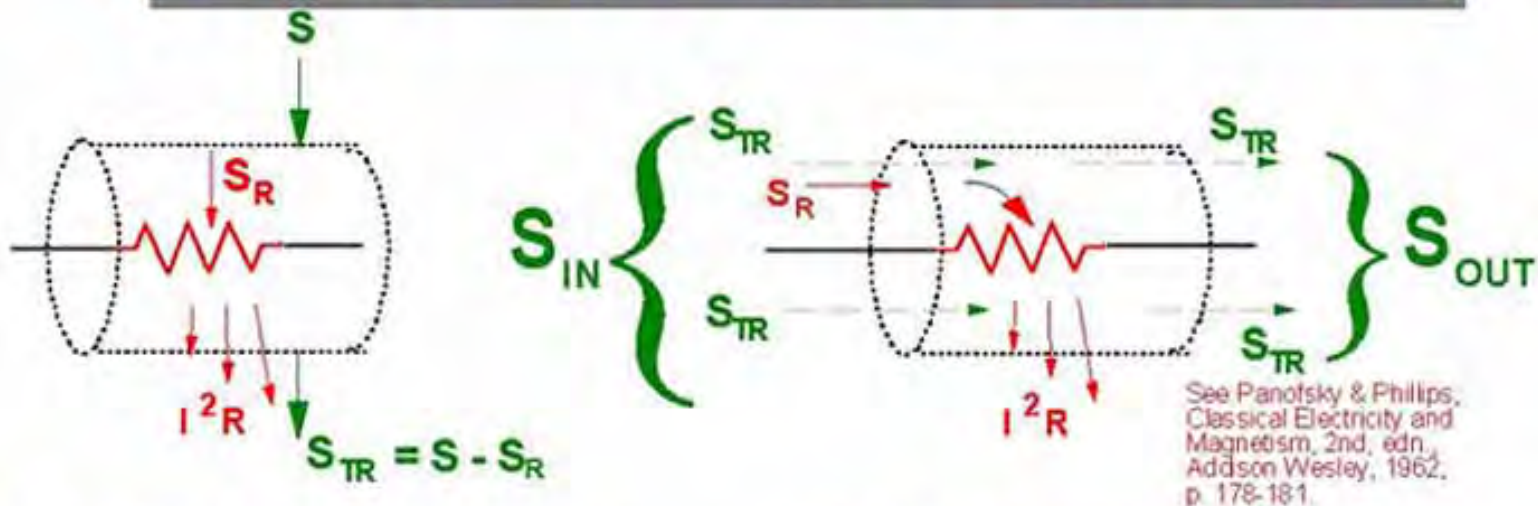
**Selects only the locally divergent portion of the Poynting energy flow that powers the component.**



**Lorentz's physically insignificant energy flow can be collected and utilized.**



# Lorentz surface integration of the Poynting vector around a closed surface



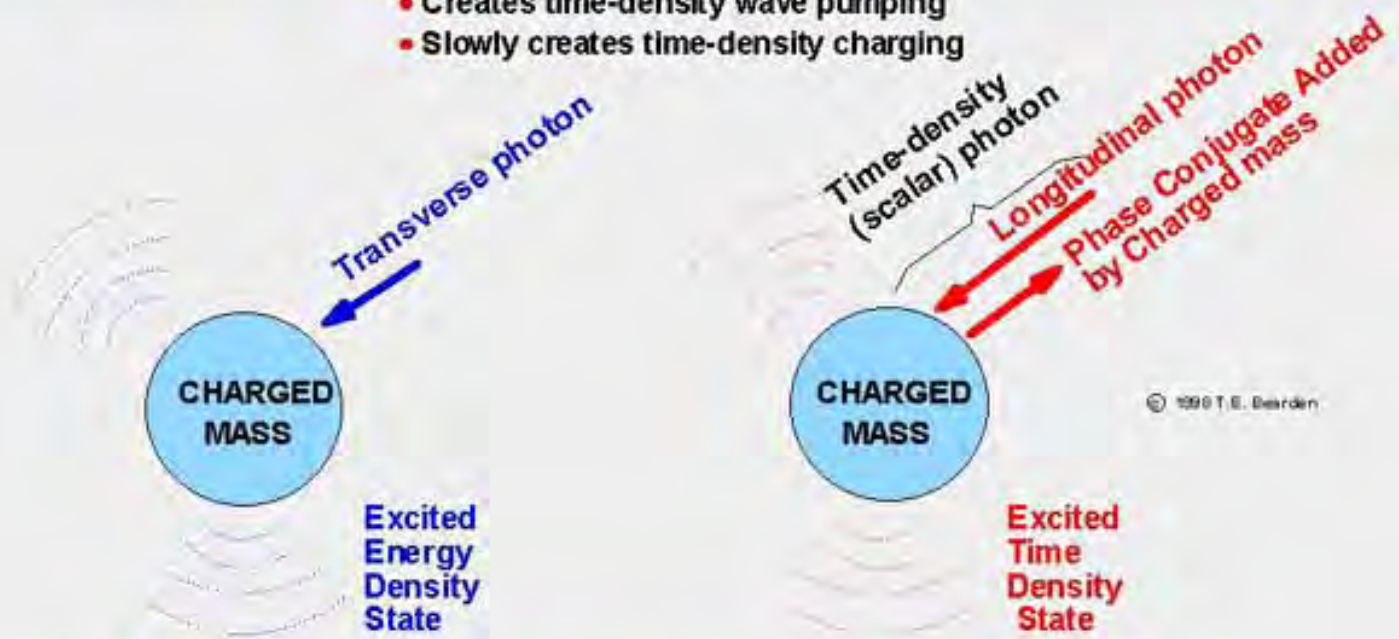
1a. Lorentz surface integration.

1b. Actual  $S$  in and  $S$  out.

**Note:** If the  $S$ -vector is integrated over the closed surface, then all energy *transport* passage is zeroed, leaving only the very small component of the Input  $S$ -flow that is powering the joule heating of the resistor. In short, only the small component of the  $S$ -flow that is equal in magnitude to the Slepian vector  $j\phi$  remains. This measures only the tiny portion of the  $S$ -flow that is "collecting" on electrons passing through the resistor, and therefrom being dissipated out of the resistor as joule heating. It discards everything else (all  $S_{TR}$ 's and  $S_{OUT}$ ).  $S_{IN}$  becomes  $S_R$ .

# Longitudinal EM Photon Interaction with Charge

- Creates time-density wave pumping
- Slowly creates time-density charging

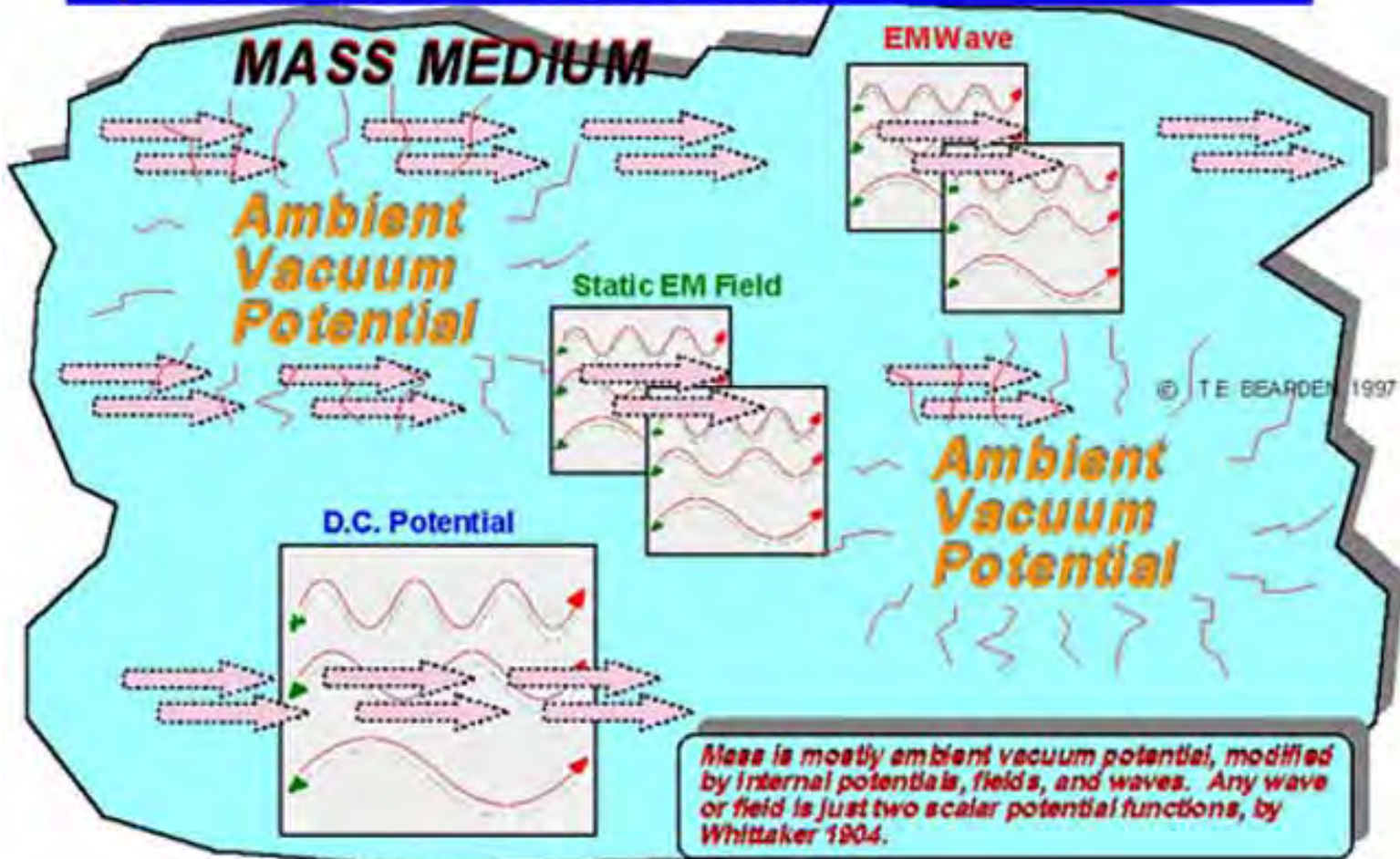


- Fundamental units are arbitrary in physics
- Can express all physics in one unit -- e.g., time
- Time is highly compressed energy
- 1 sec =  $9 \times 10^{16}$  joules of transverse EM wave energy



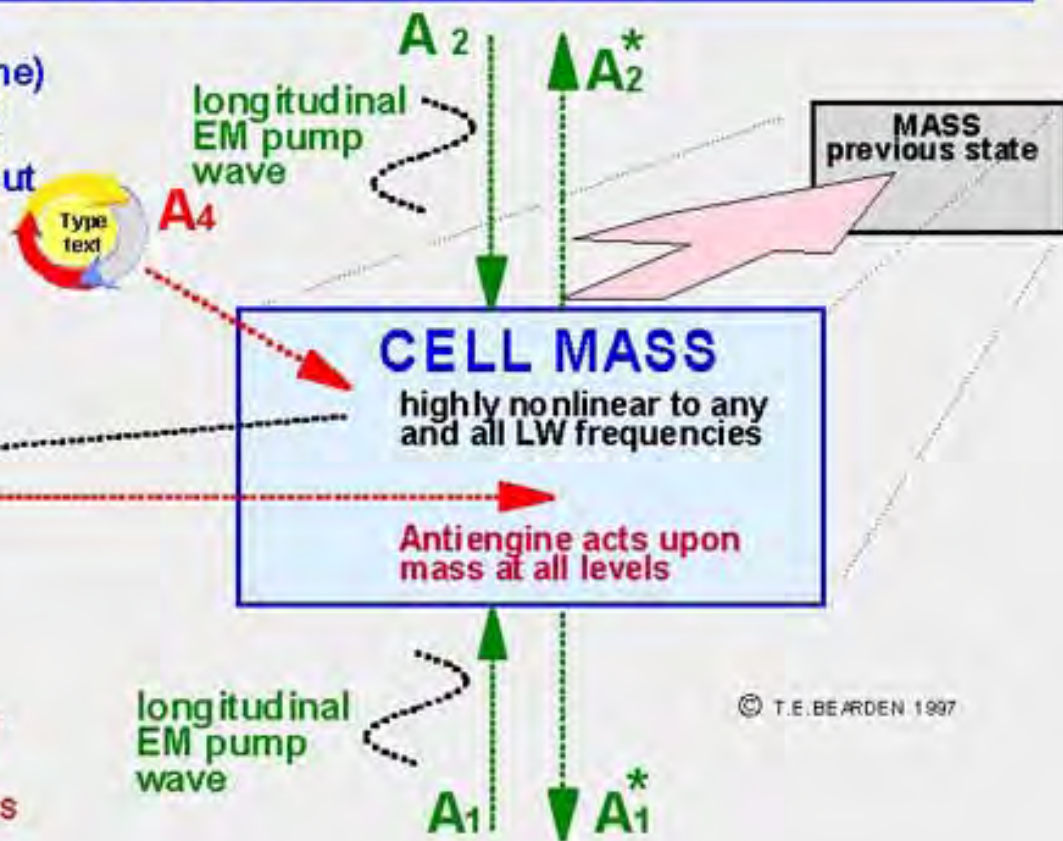
Figure 1-8. Infolded biwave composition of a scalar potential.

**Mass is transparent to longitudinal EM waves, which move through the infolded interiors of internal waves, potentials, and fields in the mass**



# Pumping with Longitudinal EM Waves Time-reverses the Mass

vacuum  
(spacetime)  
engine in  
the mass  
is the input



AN AMPLIFIED VACUUM  
(SPACETIME) ANTIENGINE IS  
FORMED AND ACTS ON THE  
MASS, TIME-REVERSING  
IT AND ALL ITS COMPONENTS  
NO MATTER HOW SMALL





# Maxwell's Quaternion Theory



- **Quaternions:**

- Discovered by Hamilton in 1843
- A quaternion has a vector part
- A quaternion has a scalar part
- First significant non-arithmetic number system
- Higher topology than vector or tensor algebra



- **Maxwell's theory was in quaternion equations**

- 20 equations in 20 unknowns
- Reduced to a small 4-equation subset by Heaviside and Gibbs
- EM topology dramatically reduced



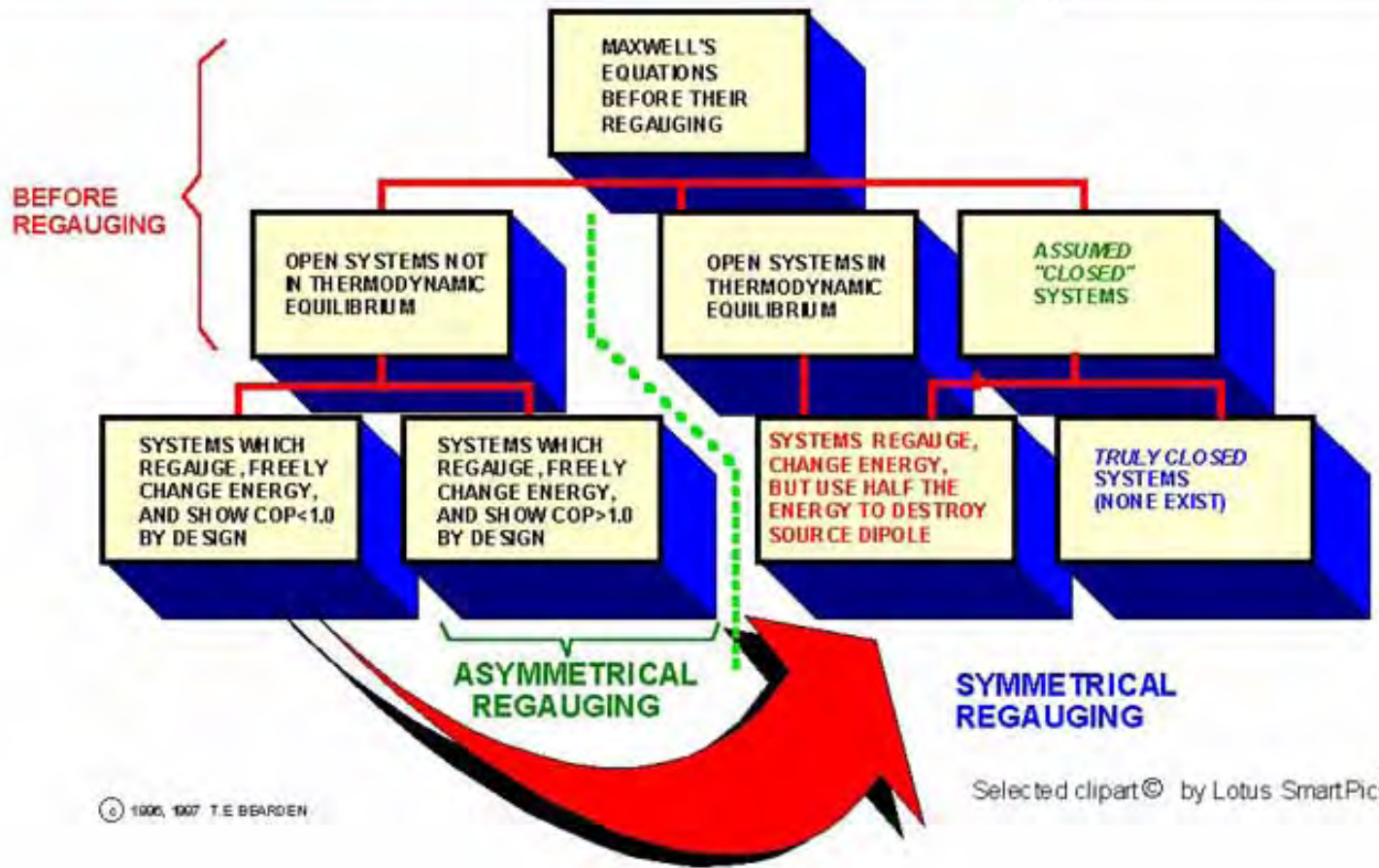
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# Maxwellian Systems

**Before regauging,  
after symmetrical regauging,  
and after asymmetrical regauging**

*Note: Any system must first break equilibrium in its vacuum exchange, before it can energize Drude electrons and "power" the load. Asymmetric regauging is always utilized. Powering loads and losses is a symmetry-restoring operation.*



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## Maxwell's four equations reduce to:

$$\nabla^2 \Phi + \frac{1}{c} \frac{\partial}{\partial t} (\nabla \cdot A) = -4 \pi \rho \quad [1]$$

$$\nabla^2 A - \frac{1}{c^2} \frac{\partial^2 A}{\partial t^2} - \nabla (\nabla \cdot A + \frac{1}{c} \frac{\partial \Phi}{\partial t}) = -\frac{4 \pi}{c} J \quad [2]$$

**A is replaced by A', where**

$$A' = A + \nabla \Lambda \quad [3]$$

**The new B' field then becomes**

$$B' = \nabla \times (A + \nabla \Lambda) = \nabla \times A + 0 = \nabla \times A = B \quad [4]$$

**A new E-field will also be formed. So let**

$$\Phi' = \Phi - \frac{1}{c} \frac{\partial \Lambda}{\partial t} \quad [5]$$

Per Jackson,  $(A, \Phi)$  are habitually chosen so that

$$\nabla \bullet A + \frac{1}{c} \frac{\partial \Phi}{\partial t} = 0 \quad [6]$$

The *net symmetrical* regauging separates variables.  
Two inhomogeneous wave equations result:

$$\nabla^2 \Phi - \frac{1}{c^2} \frac{\partial^2 \Phi}{\partial t^2} = -4\pi\rho \quad [7]$$

$$\nabla^2 A - \frac{1}{c^2} \frac{\partial^2 A}{\partial t^2} = -\frac{4\pi}{c} J \quad [8]$$

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Equations [1] and [2] arbitrarily changed to [7] and [8]



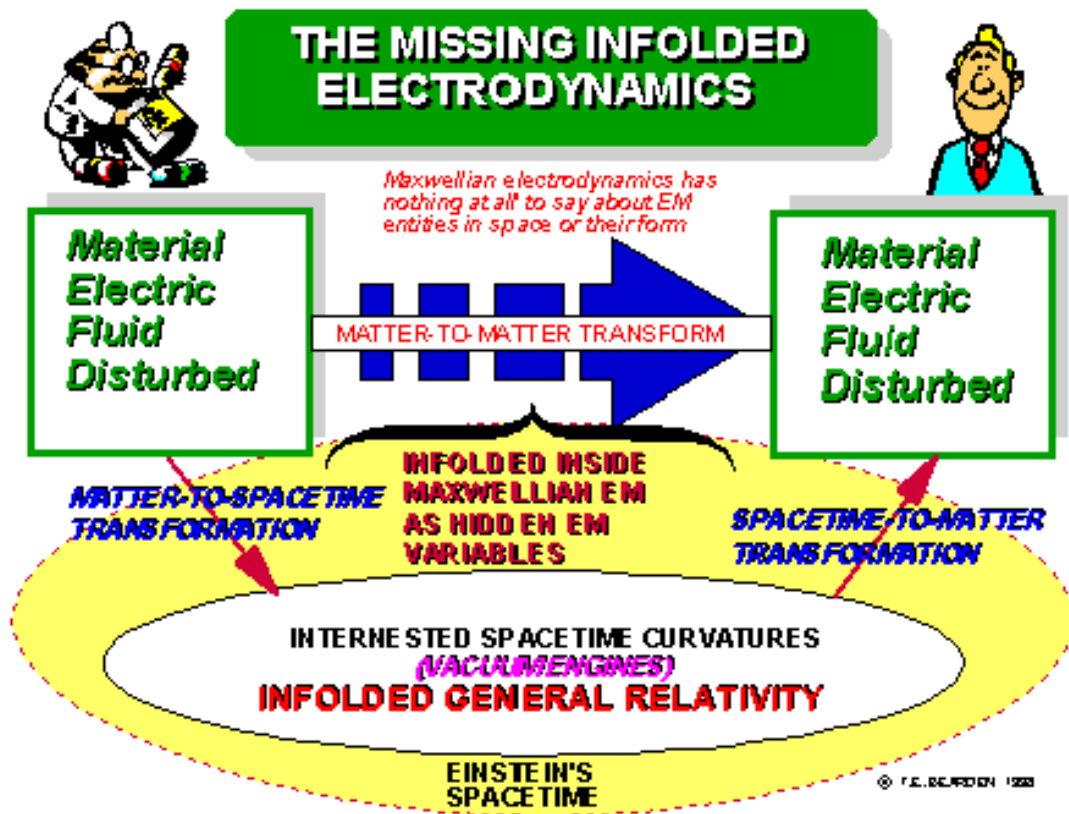
# The Missing Infolded Electrodynamics

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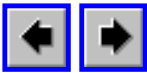
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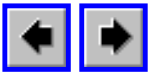


## *Major Points of Presentation*

- Electrodynamics is seriously flawed
  - Some major flaws
  - Corrections indicated
- Why past corrective attempts failed
  - Force field concept is material
  - Missing two infolded transforms ( $M \rightarrow ST$ ;  $ST \rightarrow M$ )
- Missing Infolded general relativity inside electrodynamics
- Several Kinds of EM Waves in Space
  - How to make
  - Transduction
- A French medical example as a deep experimental demonstration
  - Spectacular regenerative cures funded by French Govt
  - Not comprehended, therefore suppressed
- Cold Fusion examples of time-density wave effects
  - China Lake instrumental anomalies in electrolysis
  - Explanation of anomalous behavior of instruments
  - Explanation of new nuclear reactions
  - Wave energy transduction provides excess heat
- Urge theorists to consider dramatically new reactions

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## ***Major Points of Presentation***

- Electrodynamics is seriously flawed
- Why past corrective attempts failed
- Missing Infolded general relativity inside electrodynamics
- Several Kinds of EM Waves in Space
- French medical example as a deep experimental demonstration
- Cold Fusion time-density wave effects
- Urge theorists to consider new reactions

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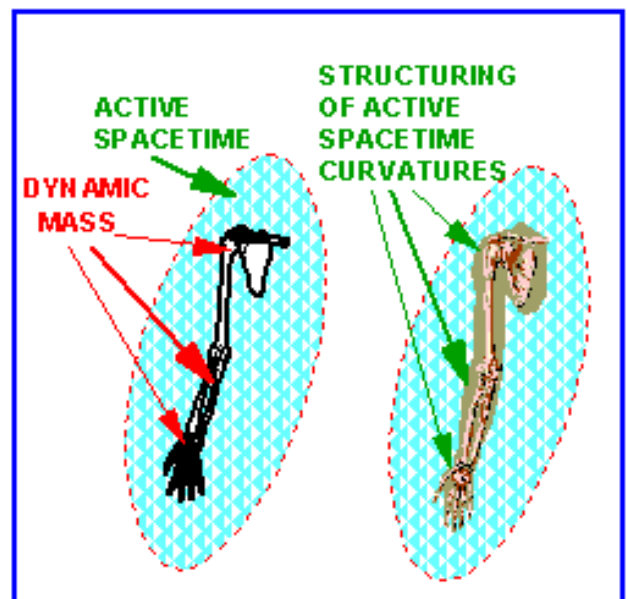
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## ***MTW's General Relativity Principle***

- **"Space acts on matter, telling it how to move.**
- **In turn, matter reacts back on space, telling it how to curve."**

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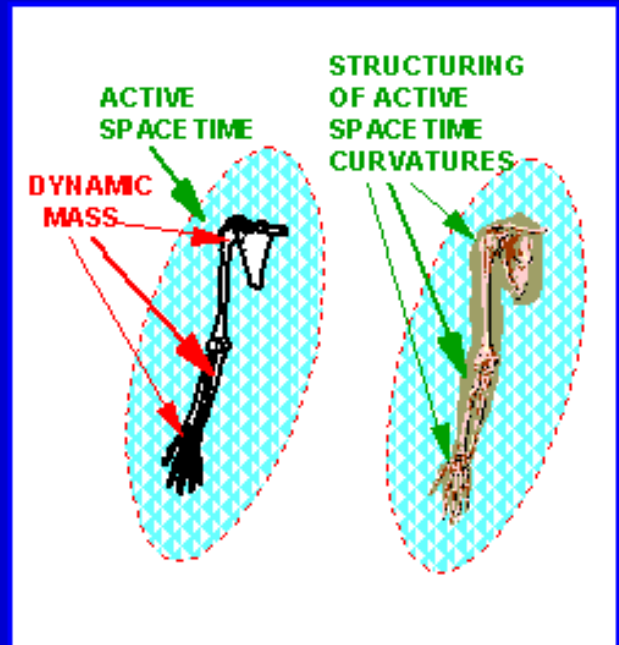
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# Extended General Relativity Principle

- "All levels of energy structures and all levels of time structures mold spacetime geometry.
- This is called a vacuum engine (spacetime engine).
- Spatial and temporal structuring act upon mass at all levels.
- This produces templates of forces, for translations and stresses."

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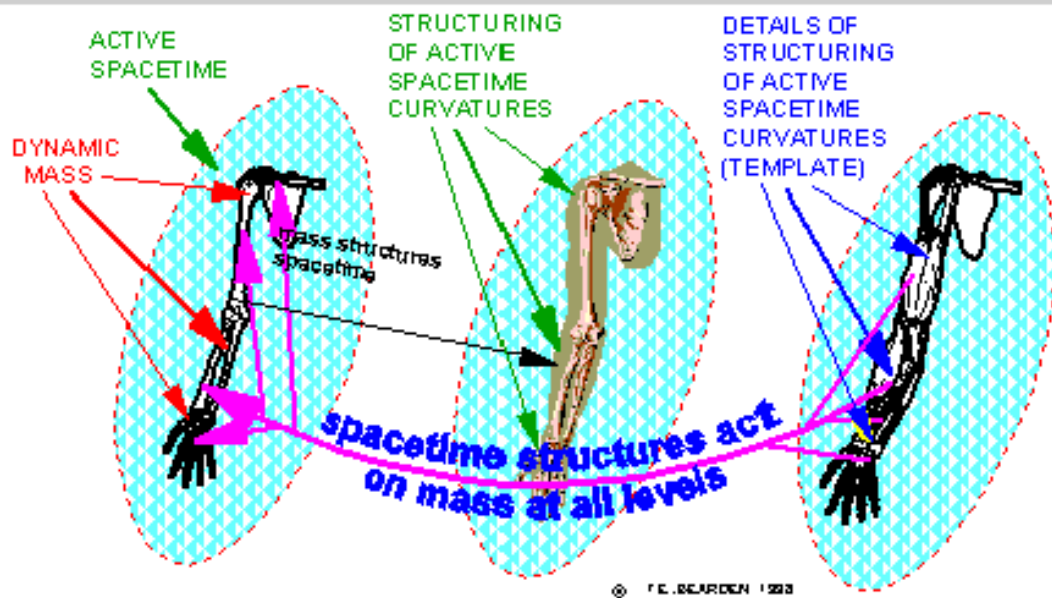
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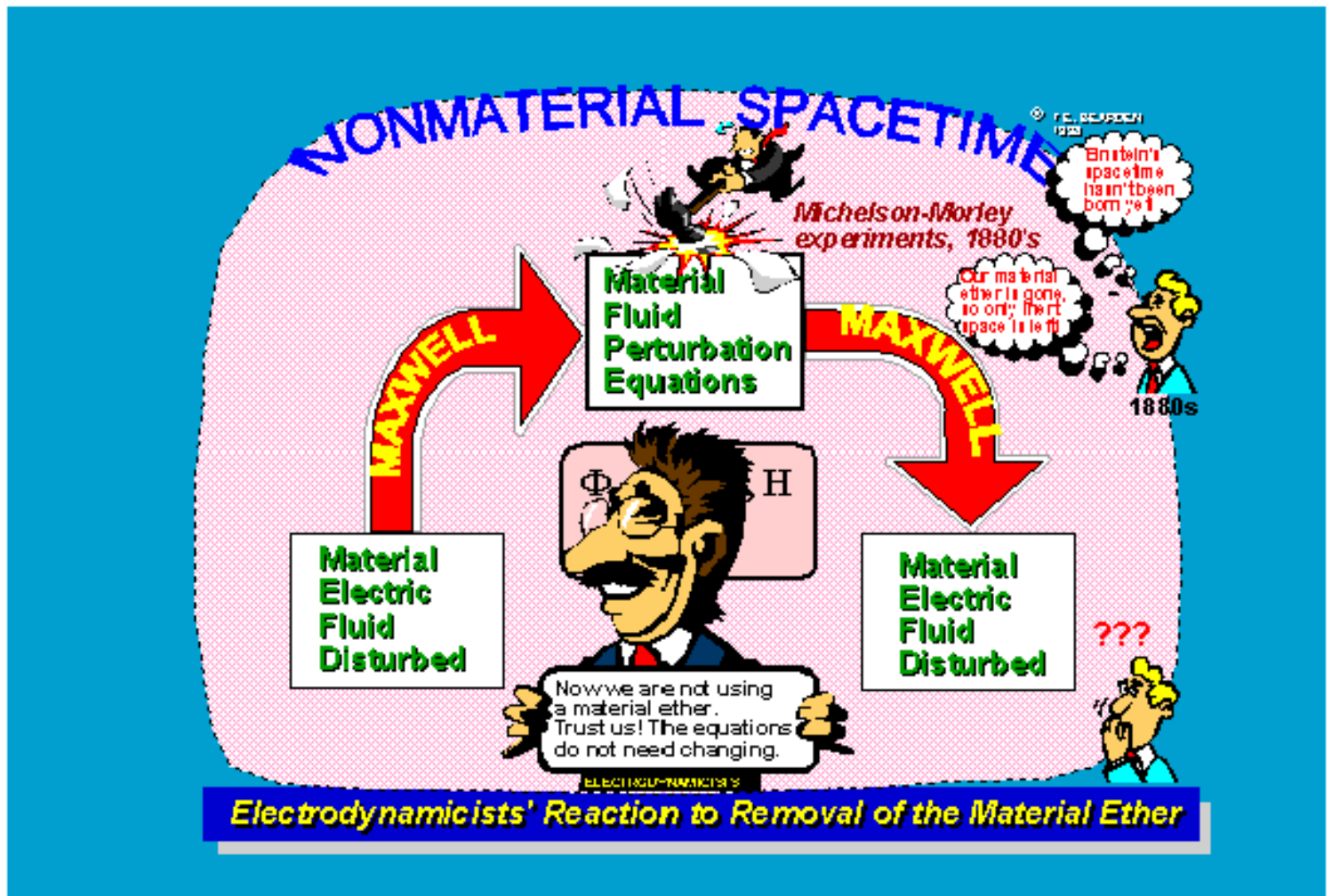


# Active Spacetime and a Specific Vacuum Engine (Spacetime Engine)

(A General Relativistic Concept and Analogy)



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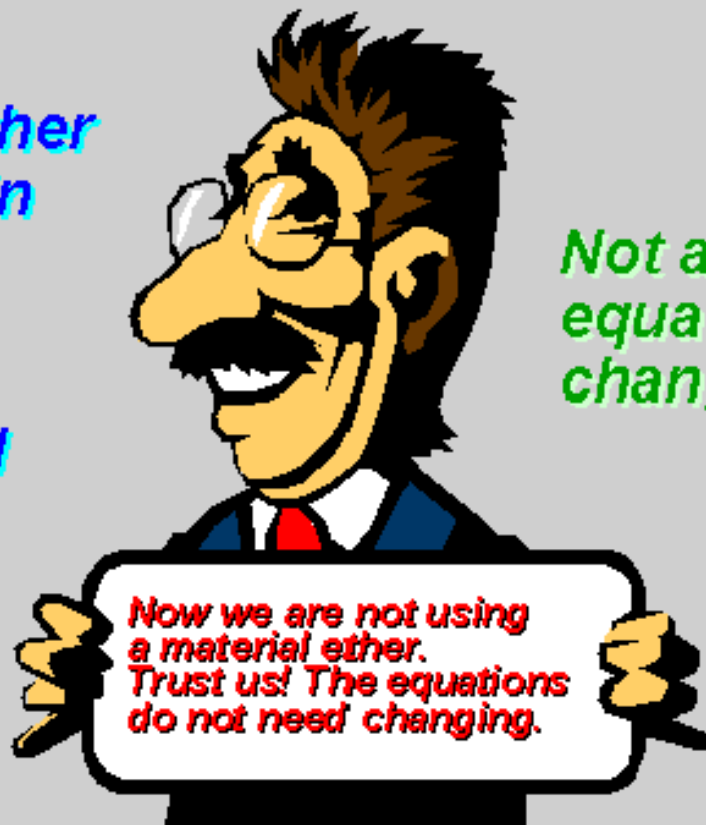


## REACTION TO LOSS OF MATERIAL ETHER

*Material Ether  
Assumed in  
Equations*

*Potentials,  
Fields, and  
Waves  
Assumed  
Material*

*Not a single  
equation was  
changed!*

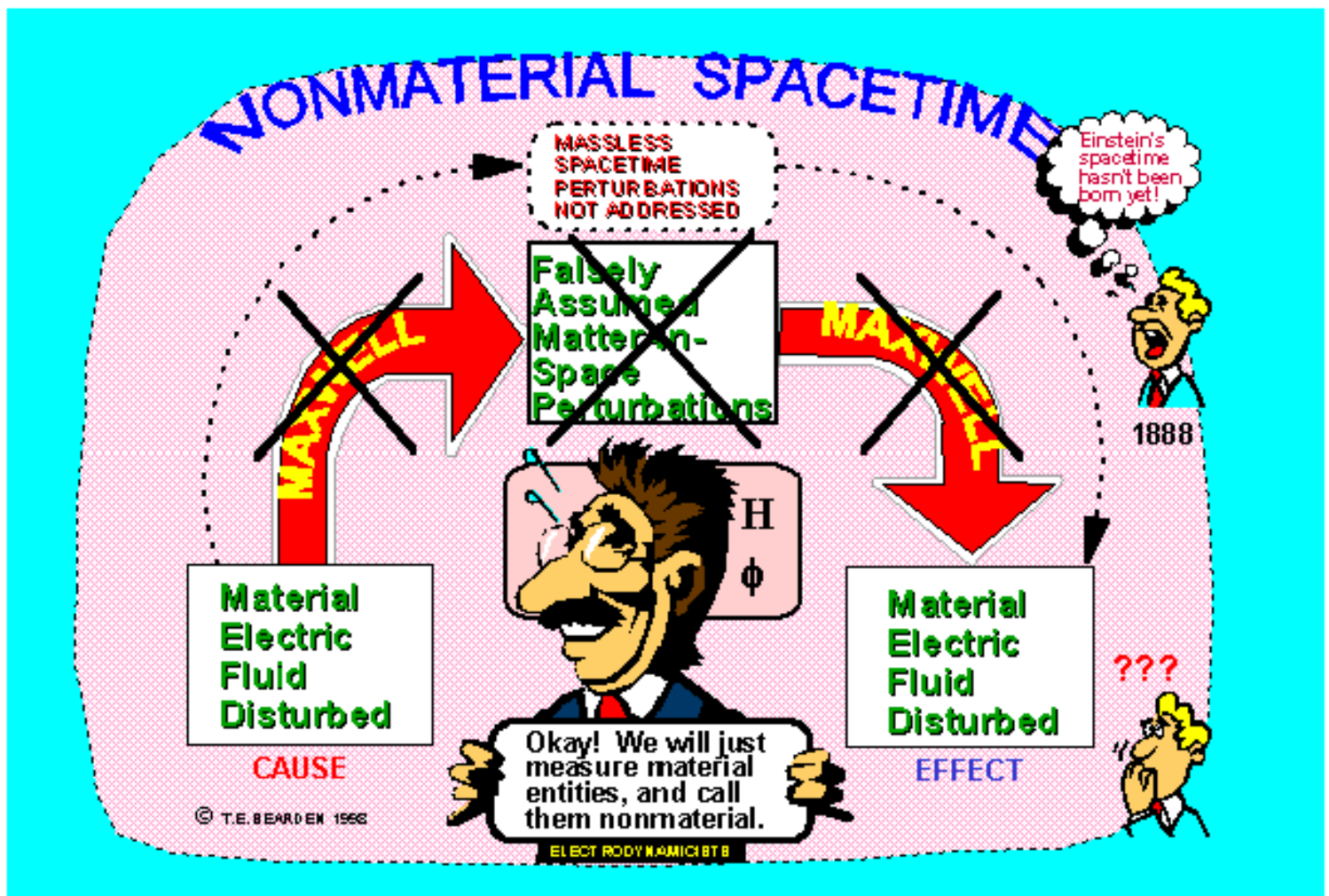


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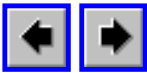
**ELECTRODYNAMICISTS**

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## ***Bunge on the Status of Electrodynamics***

---

***"... it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state..."***

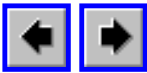
***"... the best modern physicist is the one who acknowledges that neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling..."***

© 1998 F.E. BEARDEN

\*Mario Bunge, Foundations of Physics, Springer-Verlag, New York, NY, 1967, p. 176..

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## ***Bunge on the Status of Electrodynamics and Physics***

---

***"... it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state..."***

***"... neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling..."***

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\*Mario Bunge, Foundations of Physics, Springer-Verlag, New York, NY, 1967, p. 176..

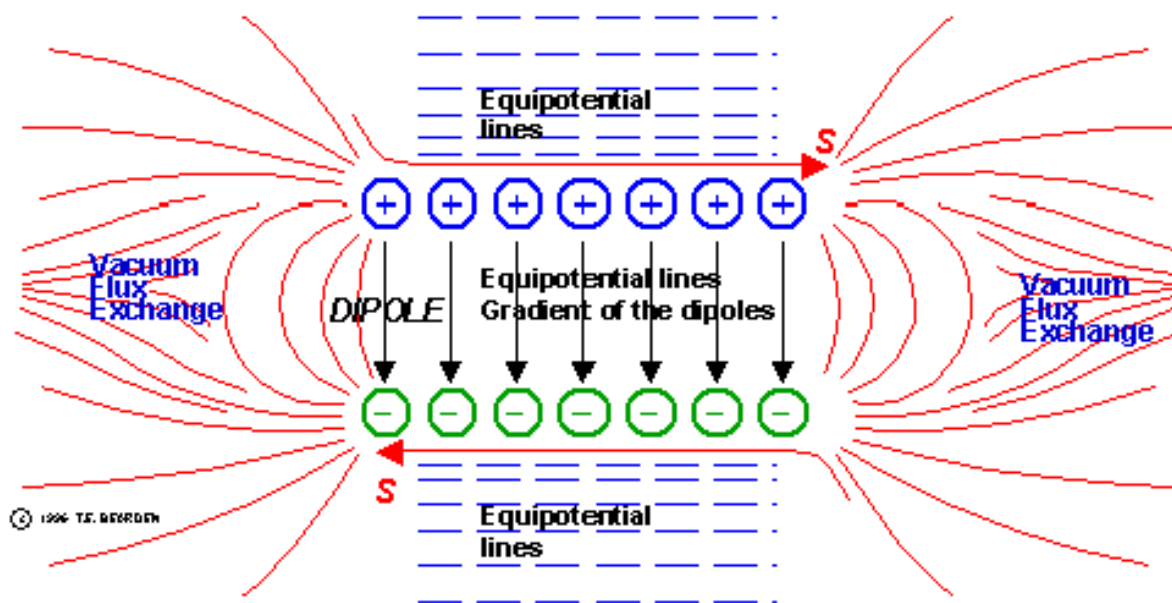
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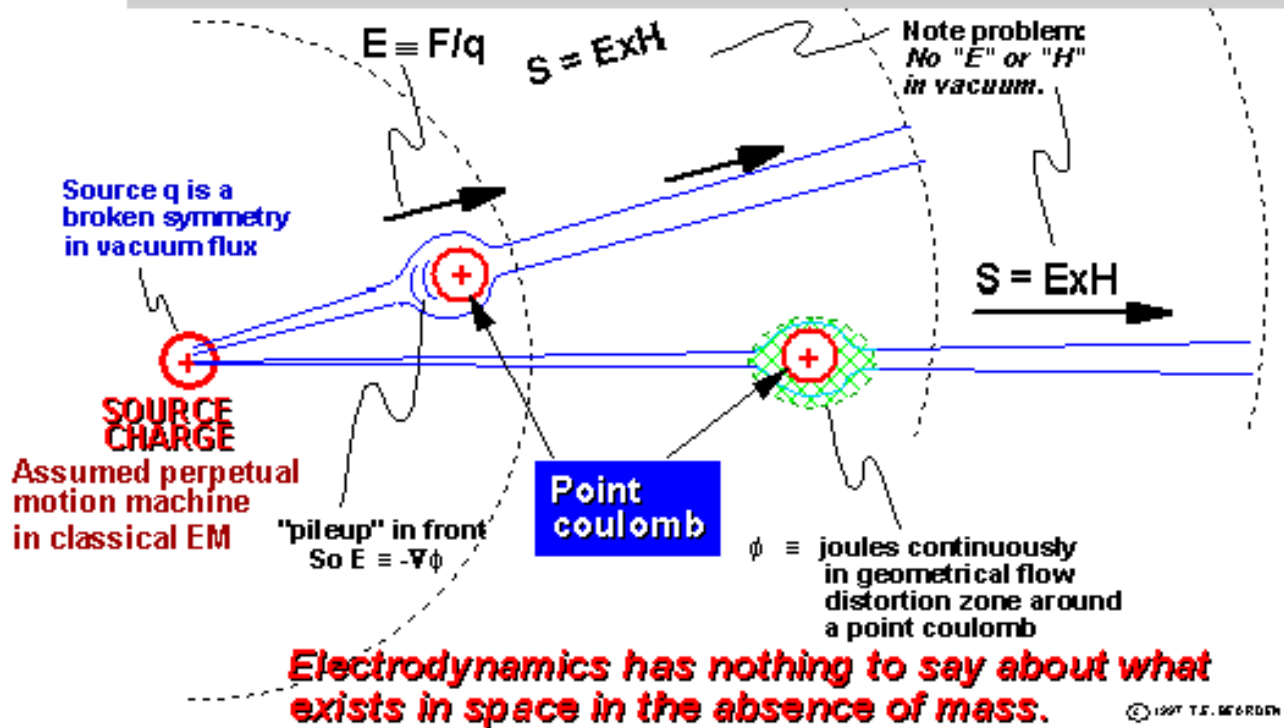
## Poynting energy flow $S$ along two parallel conductors

*Surface charges in conductors form a distributed dipole*



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***As defined, fields and potentials only exist in and on charged matter***

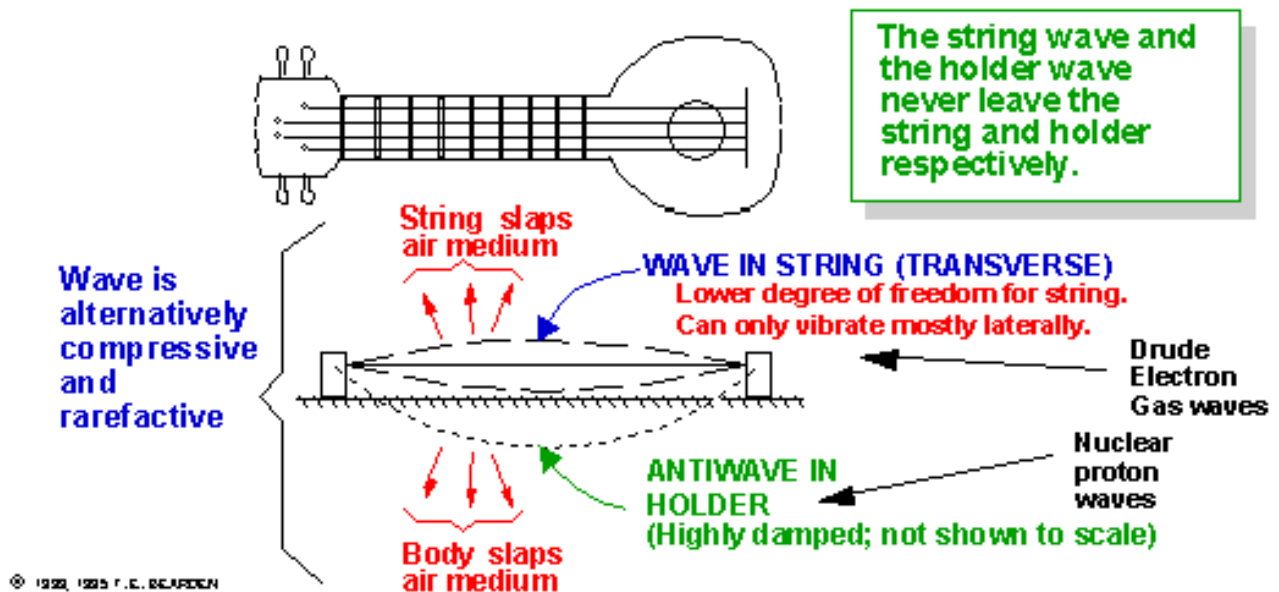


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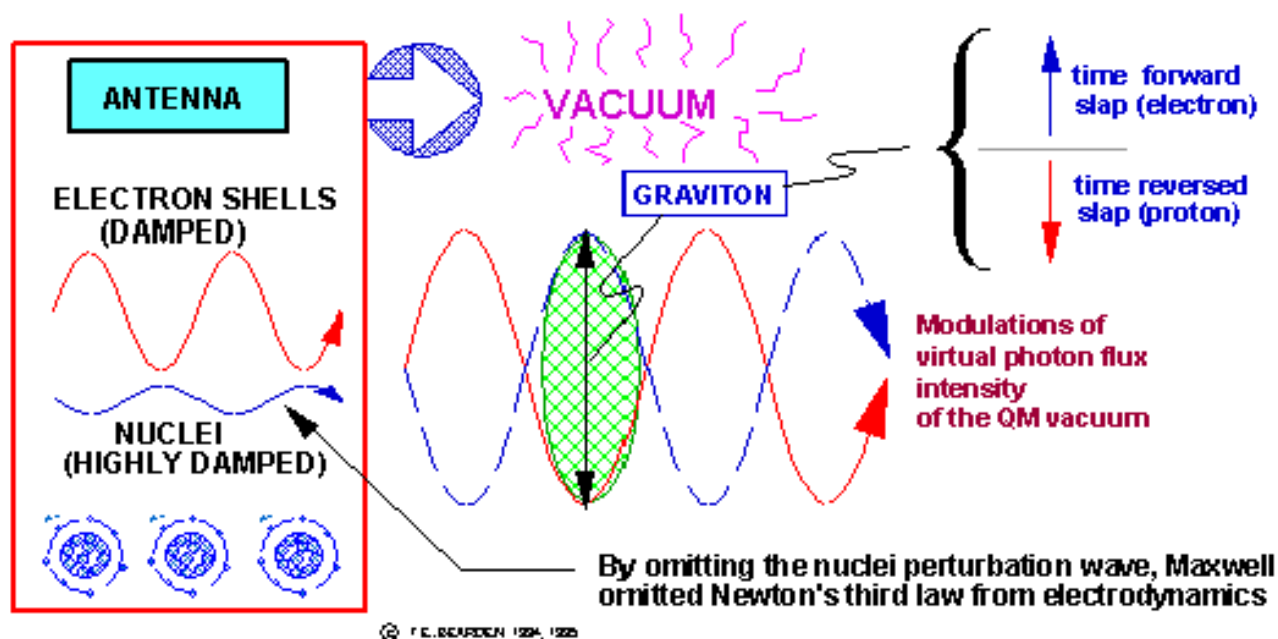
## Air Medium Disturbances Generated When Air is Perturbed by a Plucked Taut String



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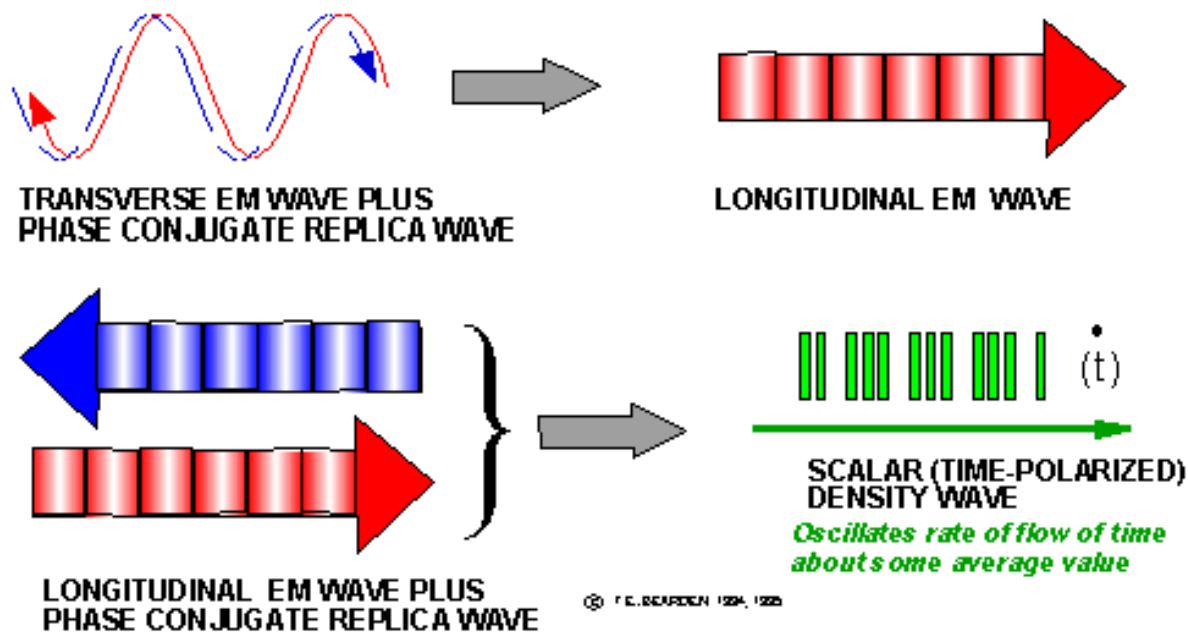
## Launching a Spacetime Perturbation ("EM Wave") from a Wire Antenna



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## Phase Conjugate Wavepairs Produce New Waves

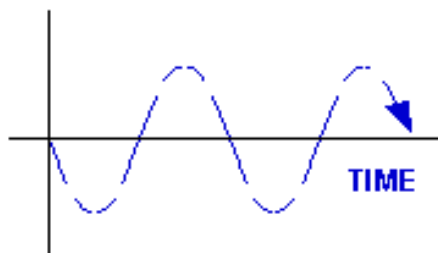


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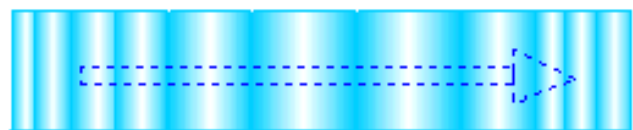
## ***Time-Polarized (Scalar) EM Wave***

**Rate of flow  
of local time**

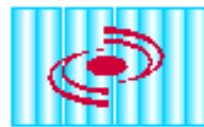


**Amplitude vs.  
observer time**

© T.E. BEARDEN 1988



**Time-density wave: Time flow rate  
dilates and compresses rhythmically**



**Particle with  
dense time-charge**



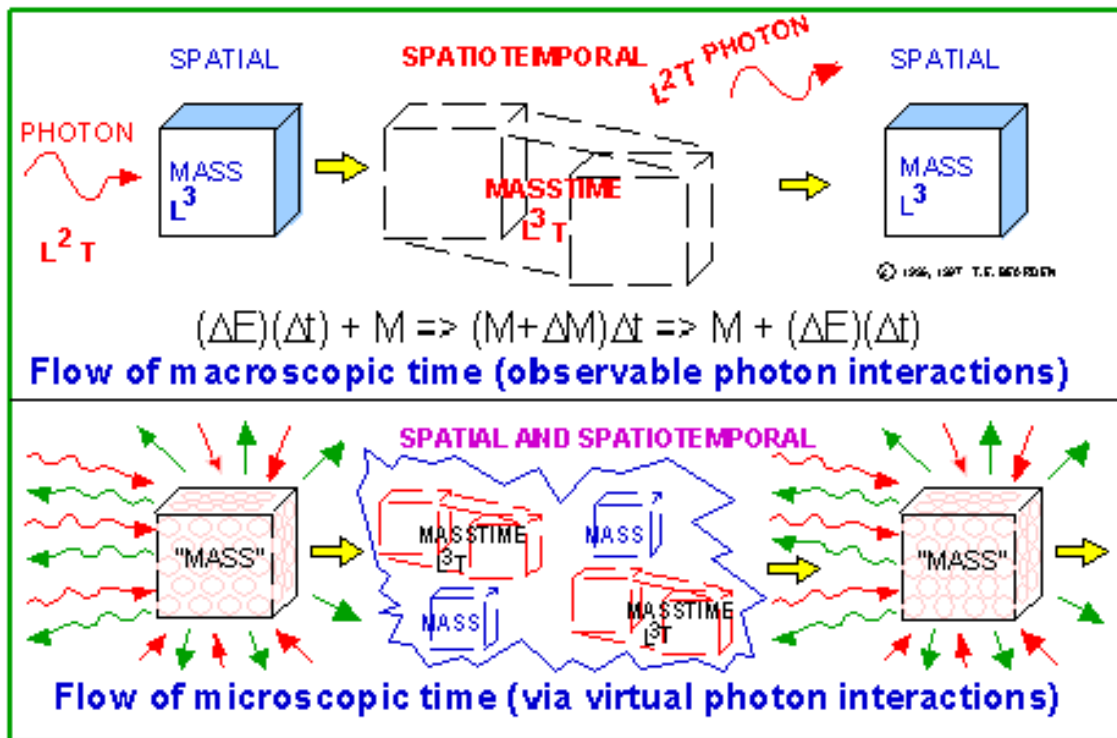
**Particle with  
thin time-charge**

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## Mechanism for the Flow of Time

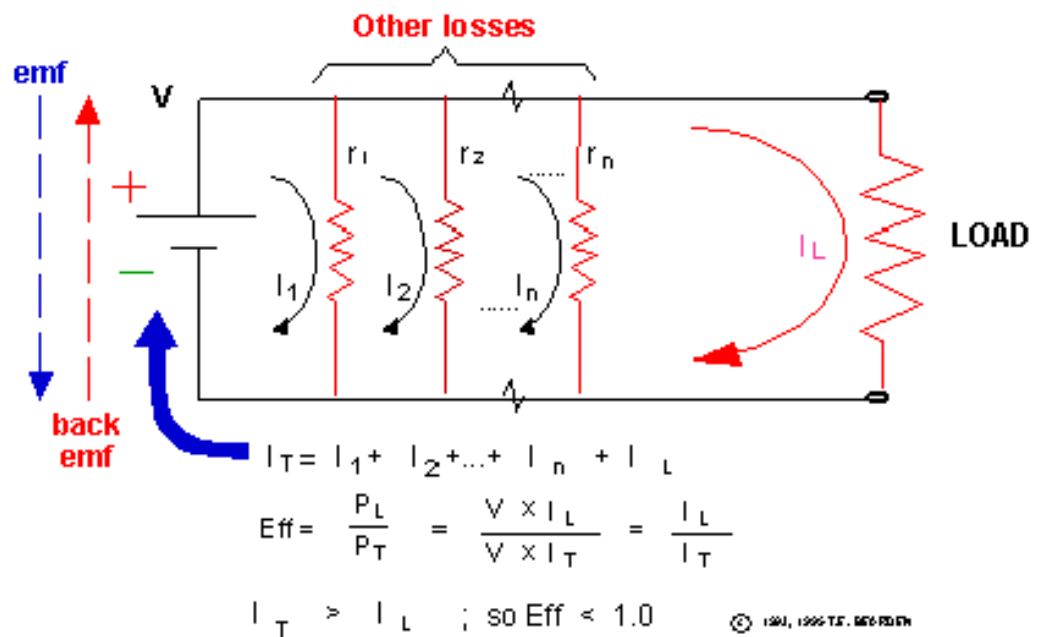


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## WHY PRESENT SYSTEMS HAVE COP < 1.0

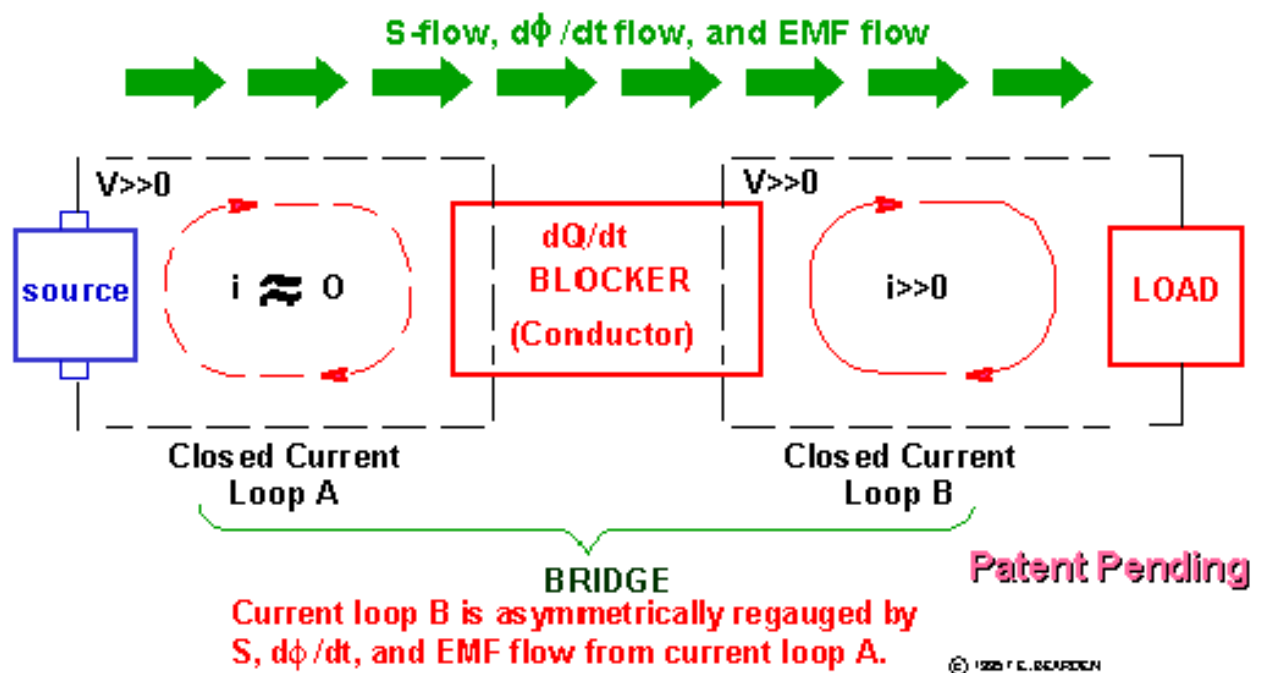
Dissipative power inside source =  $V I_T$  and  $V I_T > F I_L$



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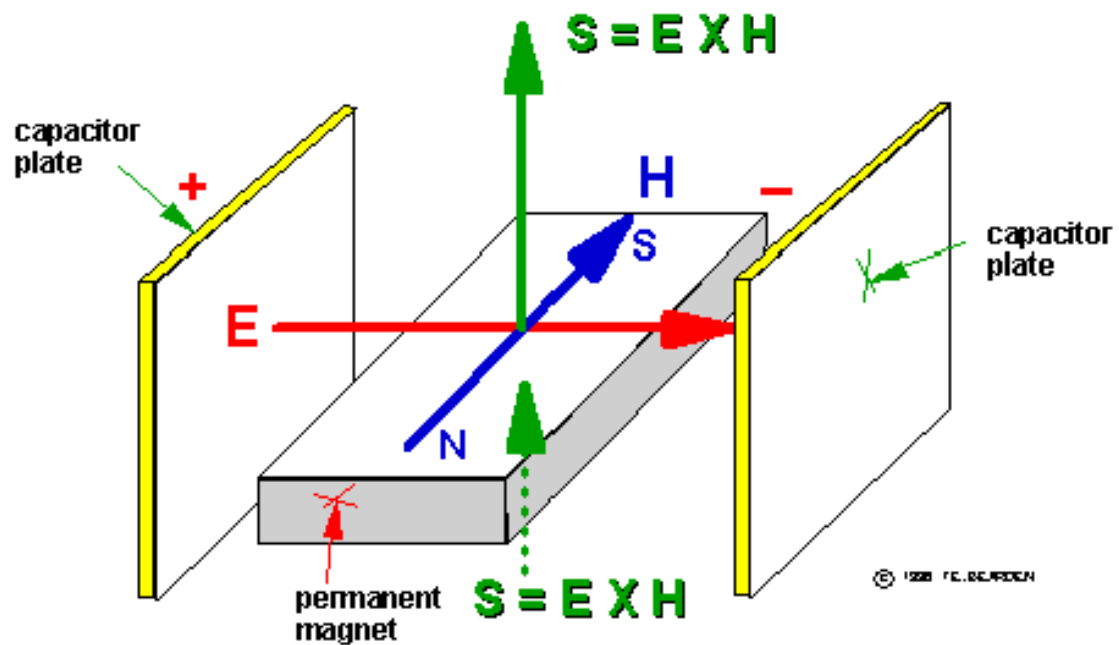


# BRIDGING ENABLES COP > 1.0





## **"Static" Poynting free-energy generator**



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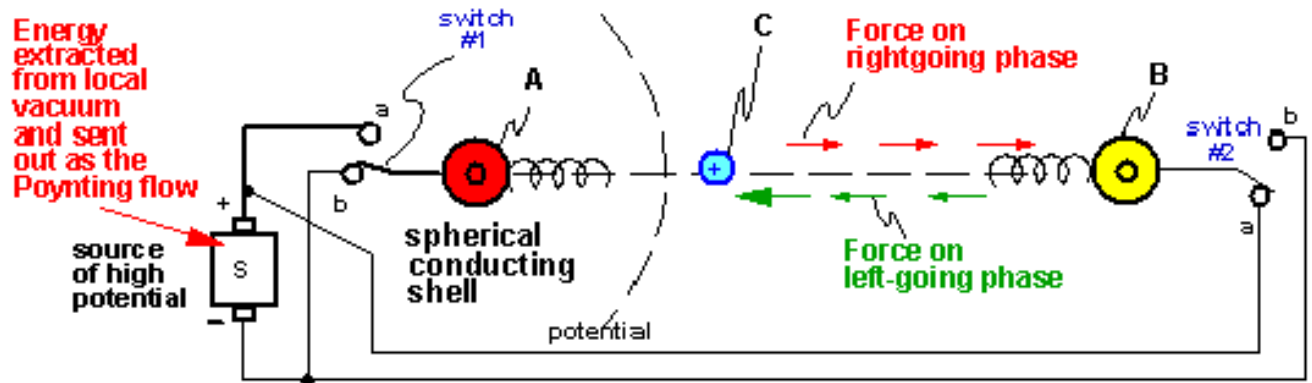




# Demonstration of an Overunity Concept

(By Asymmetrical Self-Regauging)

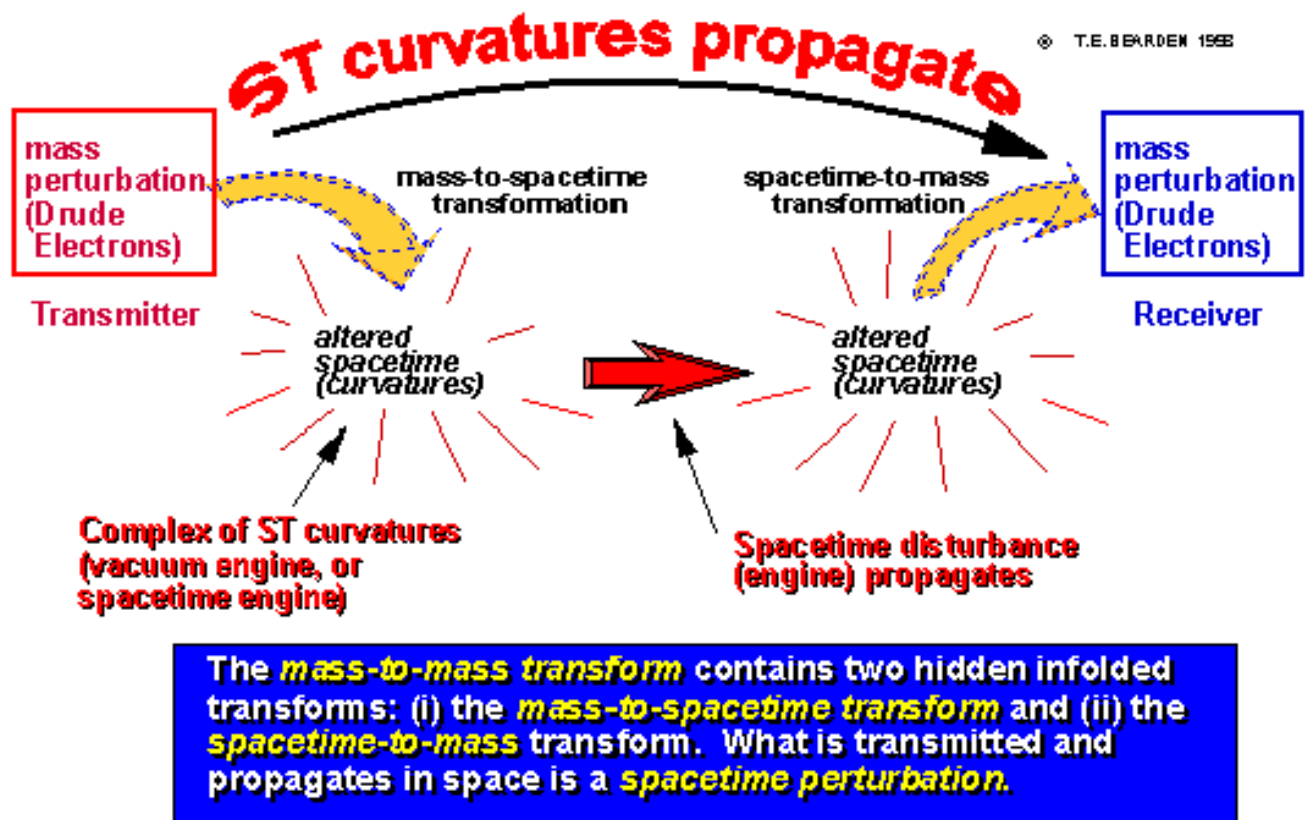
Patent Pending



**Assumptions:** Capacitances of A and B very small;  
Charge B large, power-free switching

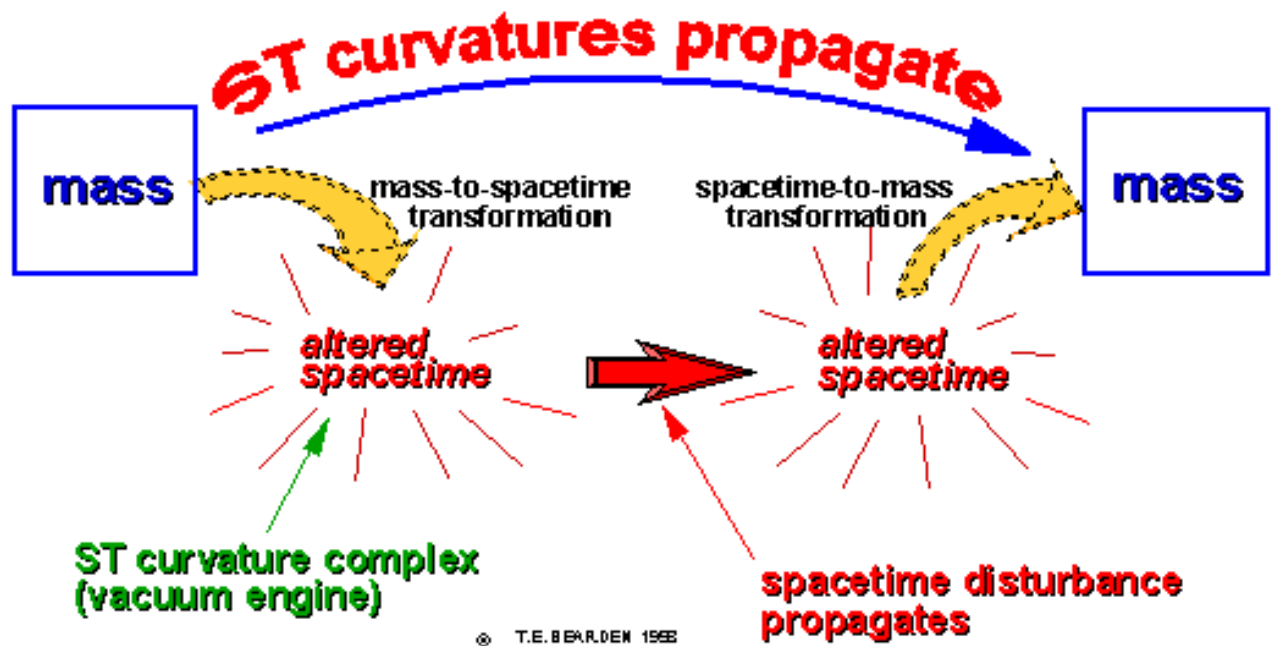
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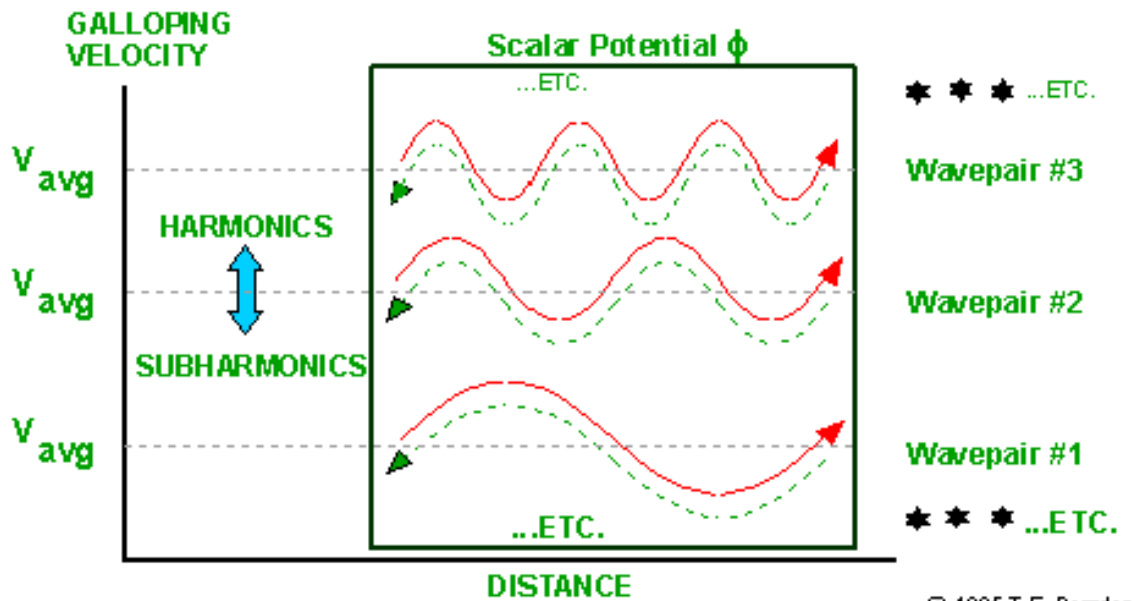


## ***Mass curves and structures spacetime; ST curvatures change and structure mass***



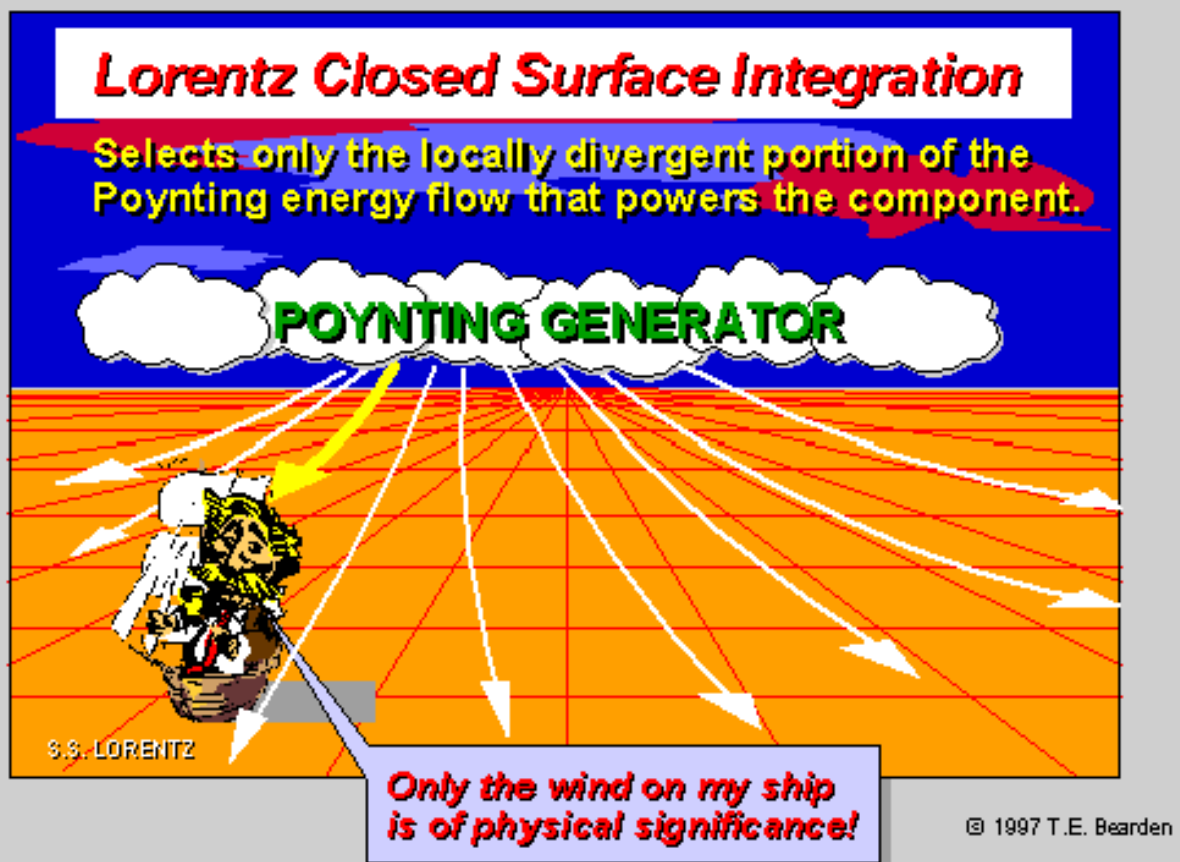
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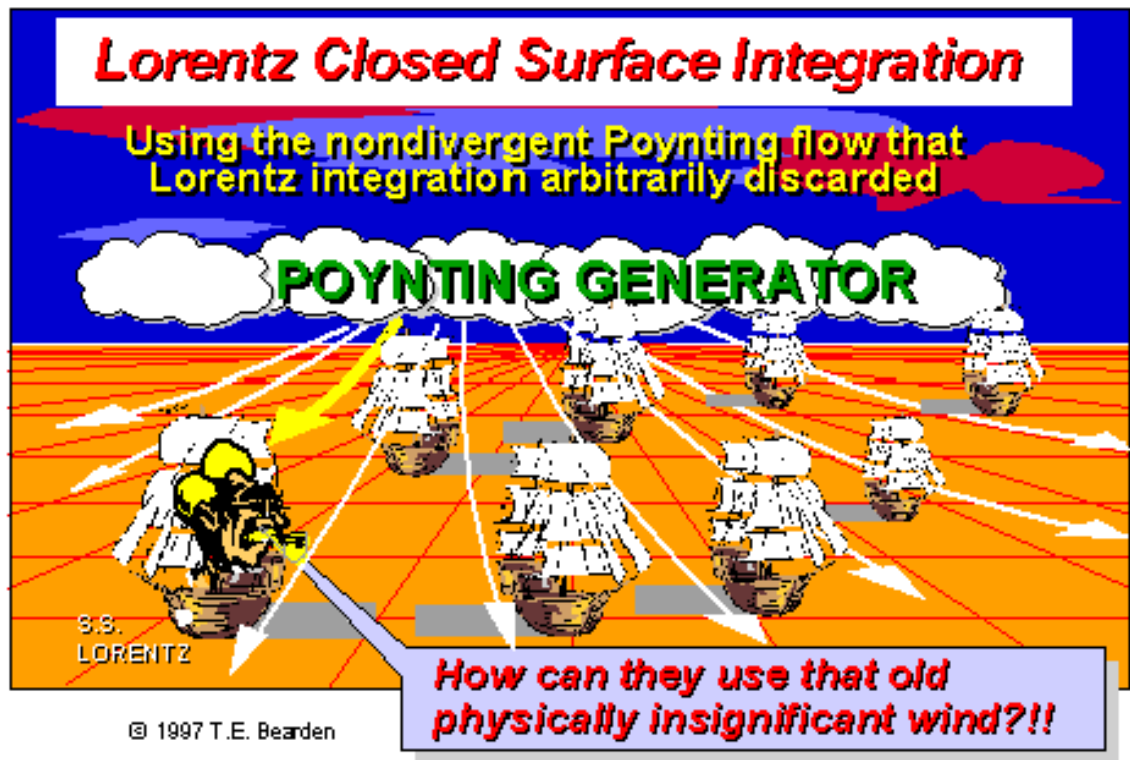
## Composition of the Scalar Potential $\phi$



**A harmonic set of bidirectional longitudinal EM wavepairs.  
Each wavepair is also a net time-polarized EM wave.**

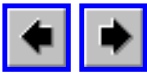
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## ***Vacuum Engine: Working ST Demons***

**Interrelated  
patterns  
of spacetime  
curvatures**

**Structured  
Einsteinian  
spacetime**

**Maxwell Demons:  
EM hidden variables  
Dynamic structures  
at all levels**

**Demons work  
at all levels**

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## ***Undistorted Progressive Waves (UPWs)***

Waves with velocity  $v$ , where  $c \leq v < \infty$

- **UPWs:**

\*Rodrigues and Lu, *Found. Phys.*,  
27(3), 1997, p. 435-503.

- Translationally invariant
- Do not spread, or reconstruct after a period
- Have infinite energy

- **Quasi UPWs:**

- Can have finite energy
- In theory, can be launched into space
- Can move subluminally
- Can move superluminally

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## ***Undistorted Progressive Waves (UPWs)***

Waves with velocity  $v$ , where  $c \leq v < \infty$

- **Major equations having UPW solutions:**

- *Homogeneous wave equation*
- *Maxwell equations*
- *Dirac, Weyl, and Klein-Gordon Equations*

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- **Maxwell solutions:**

- *Subluminal solutions are EM particles*
- *Superluminal solutions are X-waves*

- **Experiment indicates such waves will  
will be produced soon**

\*Rodrigues and Lu, *Found. Phys.*,  
27(3), 1997, p. 435-508.

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## ***Other Superluminal Waves***

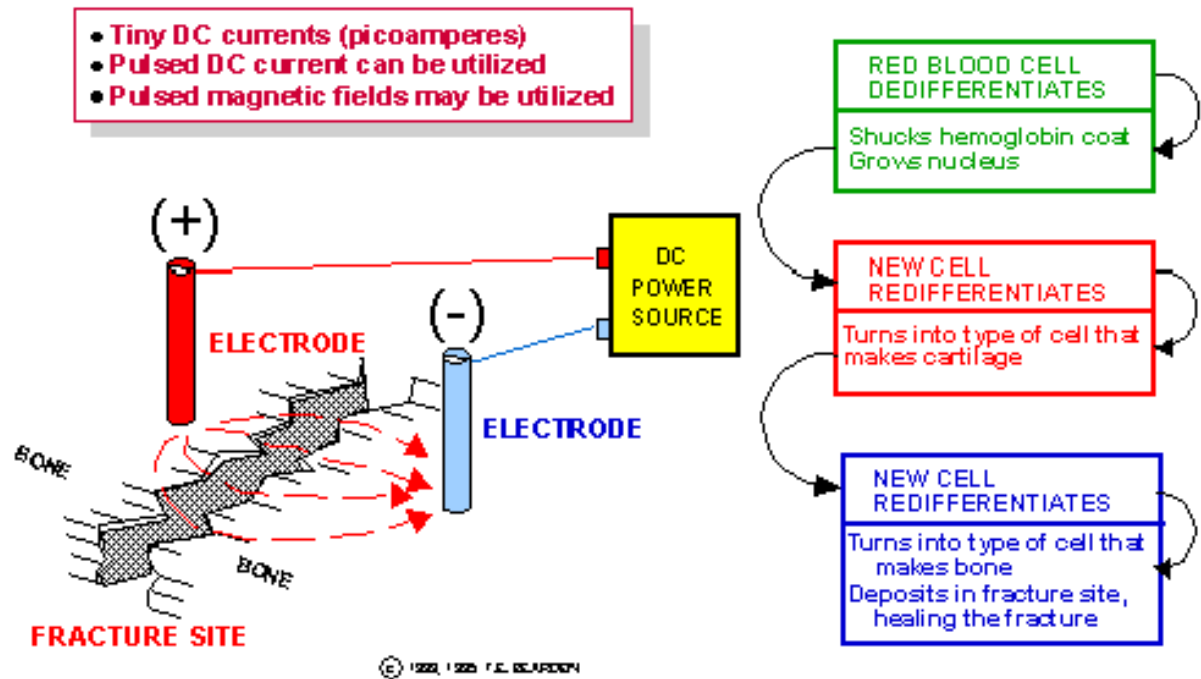
- **Waves can move superluminally in quantum tunneling**
- **Nimtz et al. have translated Mozart's 40th symphony at  $v = 4.7 c$** 
  - *Through a barrier in a waveguide*
  - *Other researchers have also transmitted EM waves superluminally through quantum tunneling*

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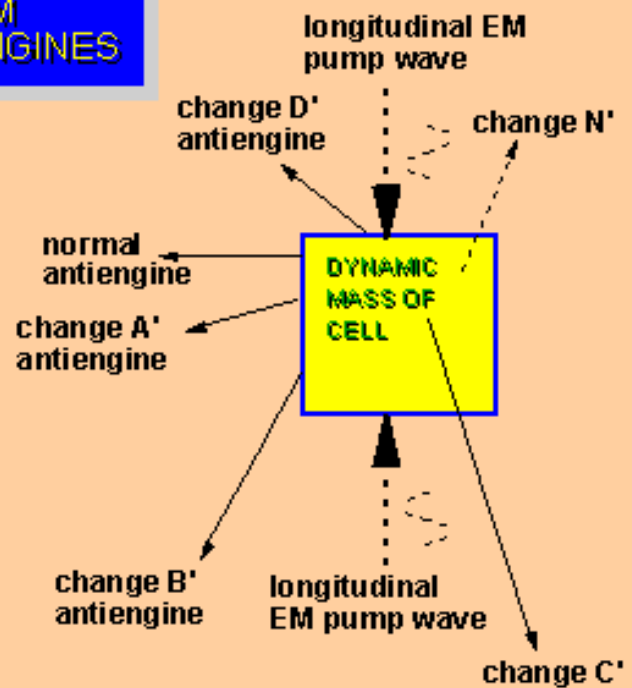
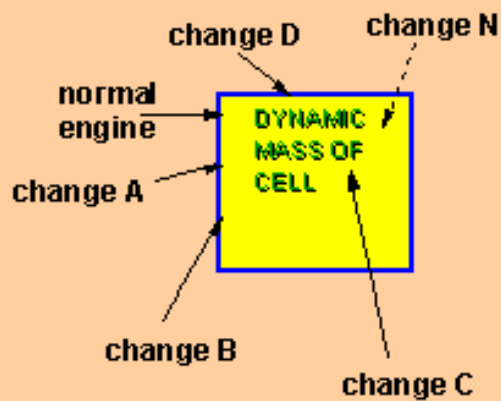
## Becker's bone fracture healing experiments



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**DISEASED CELL'S DEVIATIONS FROM  
NORMAL ARE LITTLE SPACETIME ENGINES**

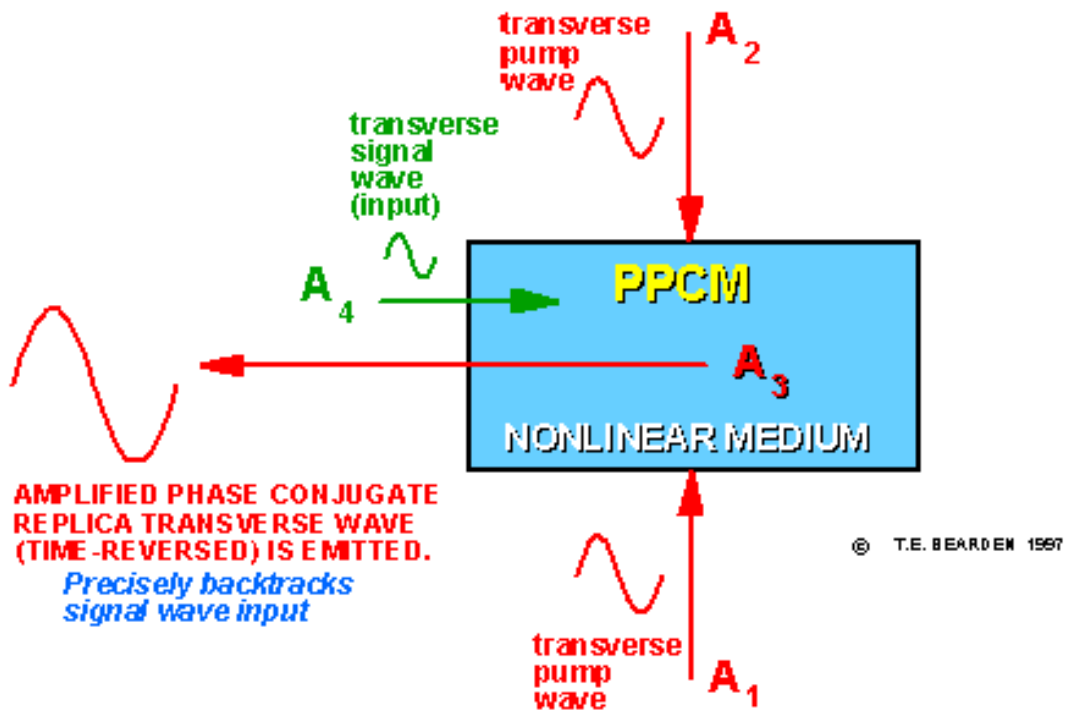


**PRODUCING A SPECIFIC VACUUM  
(SPACETIME CURVATURE) ENGINE**

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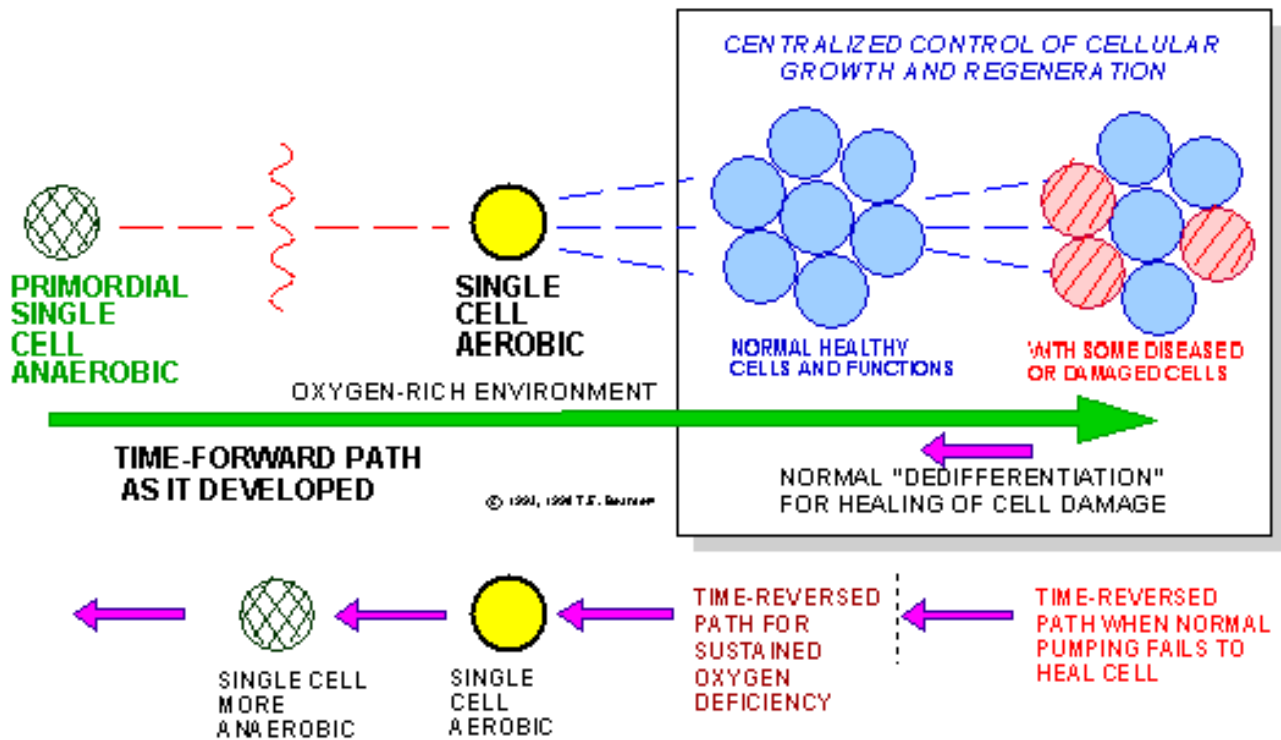


## Transverse EM Wave Pumping of PCM





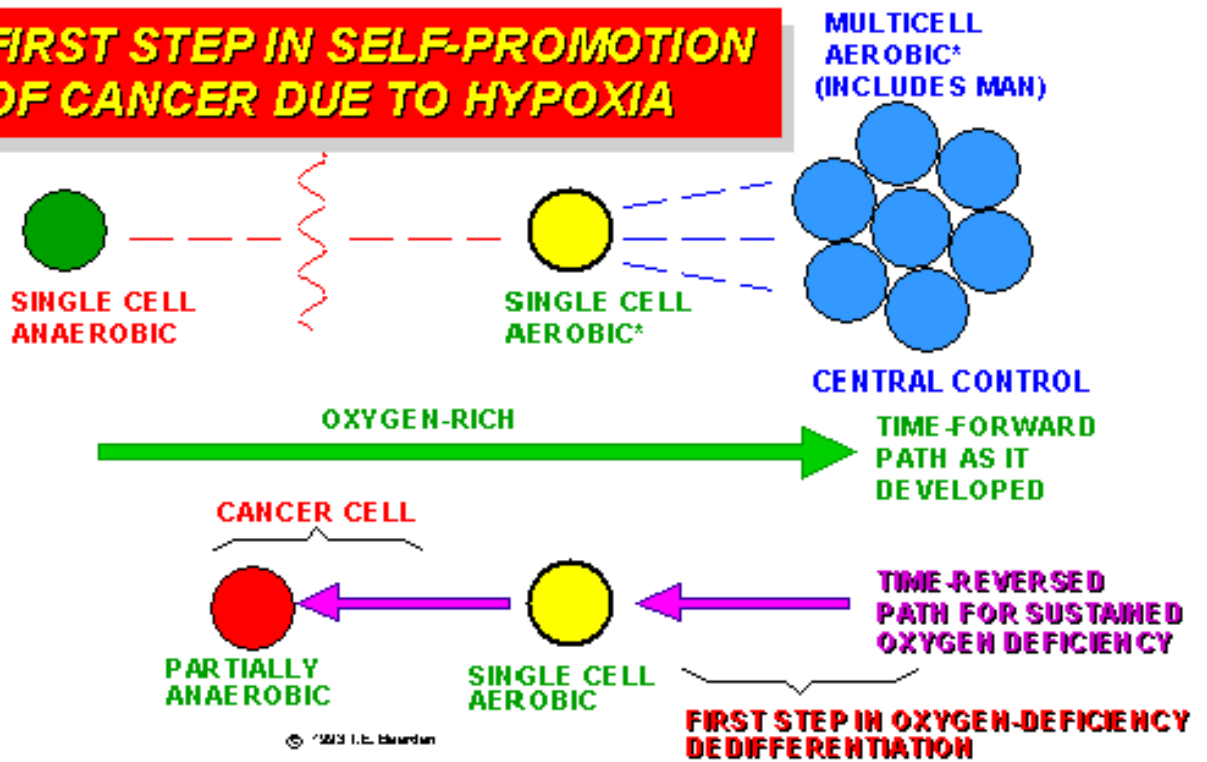
## Differentiation and Dedifferentiation Timelines



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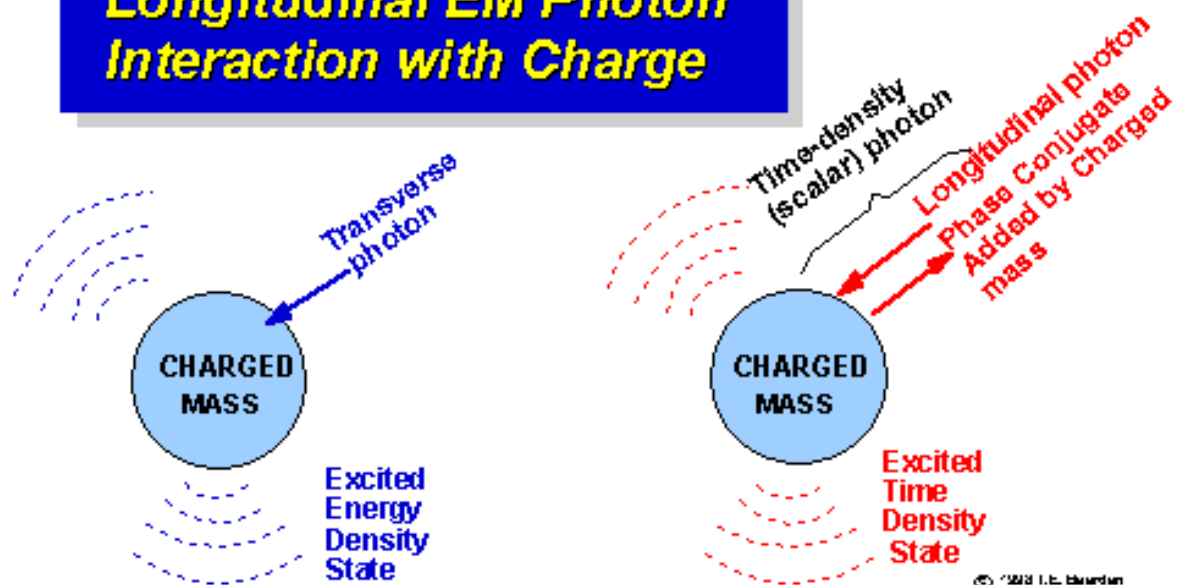


## FIRST STEP IN SELF-PROMOTION OF CANCER DUE TO HYPOXIA



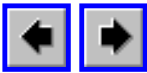


## Longitudinal EM Photon Interaction with Charge



- Fundamental units are arbitrary in physics
- Can express all physics in one unit -- e.g., time
- Time is highly compressed energy
- 1 sec =  $9 \times 10^{16}$  joules of transverse EM wave energy





## ***Use of General Relativity (GR) in Particle Physics***

- GR seldom used in particle physics
- In cold fusion, Matsumoto\* has applied general relativity
- Consistent with important cold fusion results
- Used spacetime (ST) curvature by energy density
- Matsumoto did not utilize:
  - Longitudinal EM waves
  - Time density (time-polarized EM) waves
  - Time density curvatures of ST (gain =  $9 \times 10^{16}$ )

© 1998 J.E. Chaudron

\* T. Matsumoto, "Mechanisms of Electro-Nuclear Collapse,"  
Proc. ICCF-7, Vancouver, BC, Canada, Apr. 1998, p. 98.

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## *Pepper\* on Time Reversing Mass*

- **Conventional NLO interactions restricted to bosons (spin 1 particles) by Pauli exclusion principle**
- **Concludes electrons, protons, neutrons, etc. (fermions, or spin 1/2 particles) cannot take part in such interactions**
- **Perhaps time reversal possible for bosons that are multiple fermions (two protons, Helium 4, pi and K mesons, etc.)**
- **Time-reversal of mass demonstrated by Priore, Pautrizel, et. al. without recognizing it.\*\* Questions exclusion for:**
  - Multi-fermion reaction with EM longitudinal waves
  - Multi-fermion reaction with time-density EM waves
- **Prior to the laser, NLO - though known in theory - was a gedanken experiment regarded as experimentally unviable**

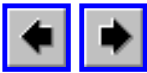
© 1993 L.L. Brunton

\* David M. Pepper, "Nonlinear Optical Phase Conjugation,"  
Optical Engineering, 21(12), Mar./Apr. 1982, p. 156-163.

\*\* Before the development of NLO in the mid-to-latter 1970s.

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## ***Pepper\* on time-reversing mass***

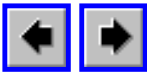
- **Conventional NLO interactions**
  - ***Restricted to bosons (spin 1 particles)***
  - ***By Pauli exclusion principle***
- **Fermions cannot take part in such interactions**
  - ***Electrons***
  - ***Protons***
  - ***Neutrons***
- **Perhaps time reversal possible for multiple fermions (quasi-bosons)**
  - ***Two protons***
  - ***Helium 4***
  - ***pi and k mesons***

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\*David M. Pepper, "Nonlinear Optical Phase Conjugation,"  
Optical Engineering, 21(12), Mar./Apr. 1982, p. 155-183.

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## ***Pepper\* on time-reversing mass (2)***

- Time-reversal of mass demonstrated by
  - ***Priore, Pautrizel, other Priore team scientists***
  - ***Without recognizing it***
- Apparently n-tuple fermions, where n is even, can be time-reversed
  - ***Impact of longitudinal EMI waves***
  - ***Impact of scalar (time-density) EMI waves***
  - ***Major part played by time-reversal regions***
- Prior to the laser, NLO - though known in theory - was a gedanken experiment and regarded as experimentally unviable

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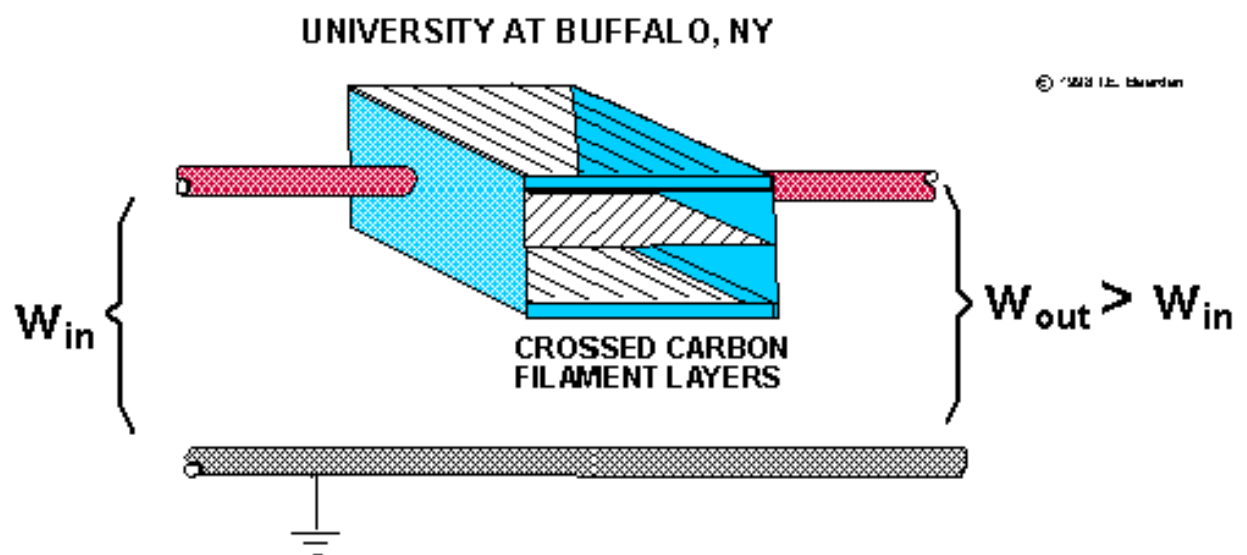
\* David M. Pepper, "Nonlinear Optical Phase Conjugation,"  
Optical Engineering, 21(12), Mar /Apr. 1982, p. 156-183.

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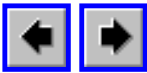
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## Chung's Carbon Filament Negative Resistor



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## Consistency of China Lake Anomalies

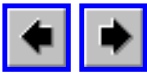
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- ▶ Variation in LW-TW transduction from experiment to experiment
- ▶ Majority produced insufficient transduction to cause ionization discharge of the GM tube gas (to cause detection)
- ▶ Correlation between appearance of anomalous radiation and the expected time periods to load palladium with deuterium
  - Within few hours in co-deposit experiments where palladium is loaded with deuterium as it deposits from solution
  - Required days of electrolysis for rods that load much slower
- ▶ The faster the deuterium loaded, the greater the interaction of deuterium in phase conjugating and self-targeting in lattice
- ▶ Variation in GM detector readings
  - One would read anomalous radiation, another would be blind to it
  - A few experiments gave simultaneous readings from two detectors
- ▶ Experiments perfectly consistent with LW-TW transduction, time-density charging, variation in GM time histories, and new conservation of energy law

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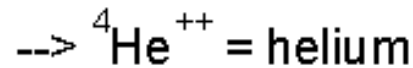
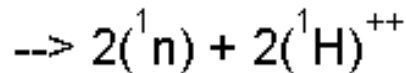
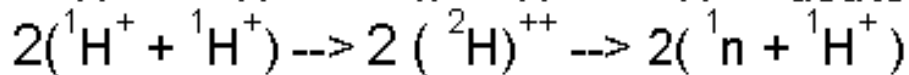
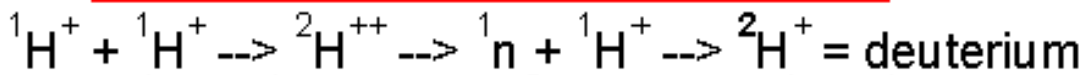


## Time-Reversal Zones in Nuclear and Chemical Reactions

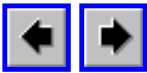
- **TIME REVERSAL ZONE**: A volume or area in a reaction environment where phase conjugate waves predominate over time-forward waves
  - In a given reaction, time-reversal may apply
  - If so, like charges attract and unlike charges repel
  - Charges move against potential gradient, to external observer
  - Time density and longitudinal EM waves become significant
  - Coulomb barrier turns into Coulomb assistant

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- **Examples (assuming a time-reversed zone):**



Quark flipping and energy  
balancing with curved spacetime  
assumed)



# ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (1)***

---

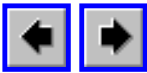
- **Nucleon interchange**
  - Changes neutron into proton and vice versa
  - At high rate (flat spacetime assumed)
- **Statistics become skewed due to curved ST**
- **Can bias statistics toward either neutron or proton end**
  - Biases toward transmutation of elements along isomer chains
  - Concept of "isomer" is vastly expanded

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## ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (2)***

---

- **Normal dynamics (impulses) may reverse**
  - *Like charges attract, unlike charges repel*
  - *Positive charges cluster (are drawn together)*
  - *H<sup>+</sup> ions (protons) may form quasi-nuclei*
  - *Nucleus coulomb barrier becomes assistant*
- **Many "impossible" reactions now possible**
  - *Quark access and quark flipping by EM*
  - *Ion clustering*
  - *Positive charges as phase conjugate mirrors*
  - *Time-density waves and time-energy charging*

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## ***The Electronuclear Reaction: Nuclear Reactions in TR-Zones (3)***

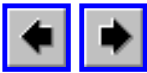
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- **Not observed until time-energy charging has become substantial**
  - *Time delay (hours, days)*
  - *Transduction of LW --> TW involved*
  - *Specific time-charging history of detectors is involved in whether they detect or not*
  - *Longitudinal EM waves become significant*
- **Curved spacetime can act as source or sink**
  - *May emit excess radiation*
  - *May absorb excess radiation*

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## On Nuclear Reactions in TR-Zones

- **Nuclear interactions now are biased:**
  - Normal nucleon interchange changes neutron into proton and vice versa, at a high rate (flat spacetime assumed)
  - Statistics now become skewed due to curved spacetime
  - Can bias statistics toward either the neutron end or proton end
  - Thus biases toward transmutation of elements along isomer chains
  - Concept of "isomer" vastly expanded
- **Normal dynamics (impulses) may be reversed**
  - Coulomb barrier becomes coulomb assistant
  - Reactions "impossible" from energy density standpoint become possible, even easy, from time-density standpoint
- **Does not become significant until sufficient time-density charges**
  - Time-delay (hours, days) before TR reactions become significant
  - Transduction of LW-->TW involved
  - Specific time-history of detectors is significant
  - longitudinal EM waves become significant
- **Curved spacetime acts as source or sink**
  - Energy balance in curved spacetime may emit excess radiation
  - Energy balance in curved spacetime may absorb excess radiation

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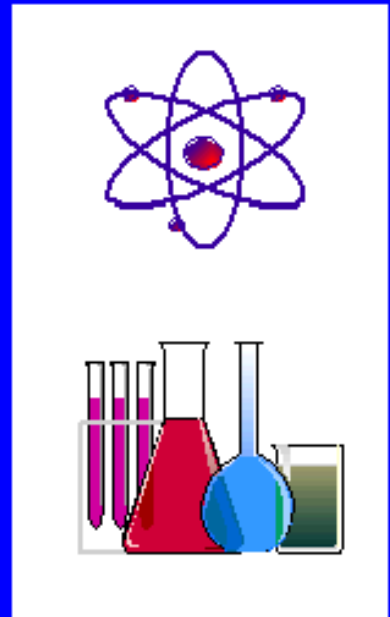
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## ***In Time-Reversed Zone: Nuclear reactions are biased***

- In normal flat ST,  $n \Leftrightarrow p$  at high rate
- Curved ST skews statistics
- Biases to either n or p
- Biases to transmutation along isomer chain
- "Isomer" concept greatly expanded

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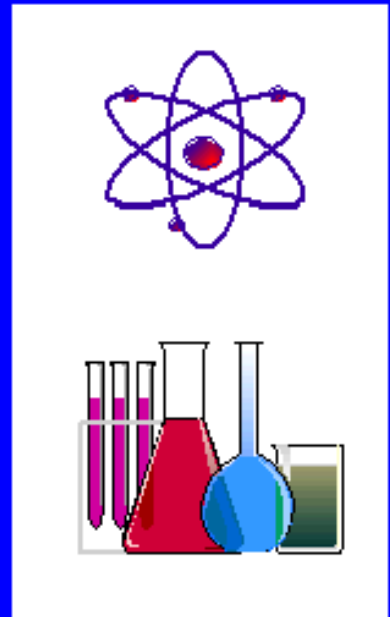
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## ***In Time-Reversed Zone: Dynamics may be reversed***

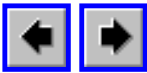
- Like charges may attract and unlike charges repel
- Coulomb barrier becomes Coulomb assistant
- Clusters like charges and forms artificial nuclei
- "Impossible" nuclear reactions at low energy
- Time-density interactions

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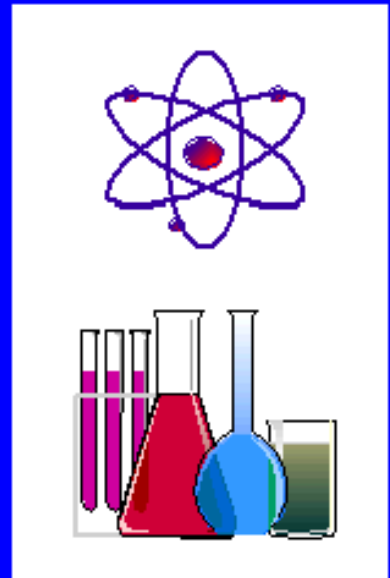
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## ***Time-Reversed Zone:*** ***Significant only after time-density charging***

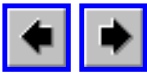
- Hours, for "fast" onset
- Days, for "slower" onset
- Transduction involved for TW  $\Leftrightarrow$  LW  $\Leftrightarrow$  TDW
- Time-history of each detector is significant
- Longitudinal EM waves become significant



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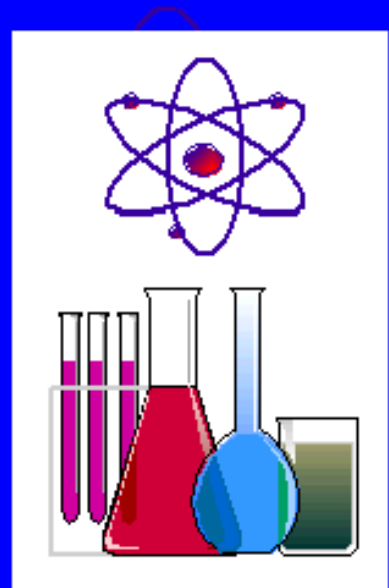
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## ***Curved Spacetime acts as source or sink***

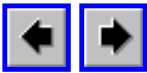
- May emit excess radiation and energy (e.g., heat)
- May absorb radiation and energy (e.g., cool)
- May transduce waves  
 $TW \Leftrightarrow LW \Leftrightarrow TDW$
- New energy conservation law applies



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## ***Anomalous LW EM Emission Phenomena at China Lake (1)***

- **Anomalous radiation from electrolysis in ionization processes**
  - Two experiments producing excess power
  - Dental X-ray film showed exposure
  - Simultaneous control study: no exposure
  - 20 experiments without excess power: no exposure
- **Excess energy strongly indicates excess film exposure**

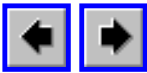
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\* Melvin H. Miles and Benjamin F. Bush, "Radiation Measurements at China Lake: Real or Artifacts?"  
Proc. ICCF-7, Vancouver, BC, Canada, Apr. 1998, p. 101.

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## ***Anomalous LW EM Emission Phenomena at China Lake (2)***

- **GM and NaI detector reaction when electrolysis with heavy water ongoing**
  - Several Geiger-Muller (GM) tubes gave anomalous detection
  - Reached 73 sigma above background
  - No anomalies when experiment off
- **GM tube detects anything which causes its internal ionization**
  - Nuclear radiation is ionizing
  - Transduced x-ray & gamma is ionizing

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## ***Sufficient LW-to-TW Transduction Ionizes GM Tube Gas (3)***

---

- **Time-history of detector involved**
  - Some GM detectors show anomalous high counts, some do not
  - Time histories of GM detectors are varied
  - Time histories of film vary minimally
- **Experimental results consistent with**
  - *LW-to-TW transduction including delay*
  - *Time-energy charging*
  - *New extension to energy conservation law*

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## ***Sufficient LW-to-TW Transduction Ionizes GM Tube Gas (4)***

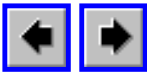
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- **Time-history of detector involved**
  - Some GM detectors show anomalous high counts, some do not
  - Time histories of GM detectors are varied
  - Time histories of film vary minimally
- **Experimental results consistent with**
  - *LW-to-TW transduction including delay*
  - *Time-energy charging*
  - *New extension to energy conservation law*

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## ***Consistency of Anomalies***

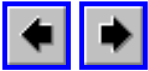
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- **LW-to-TW transduction varied from experiment to experiment**
- **Most experiments produced insufficient transduction to cause ionization**
- **Appearance of anomalous radiation correlated with expected time loading of palladium with deuterium**
  - Within few hours in experiments where palladium loads with deuterium as it deposits from solution
  - Required days for rods that load much slower

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## ***Consistency of Anomalies (2)***

---

- **Faster the deuterium loaded, the greater the interaction of deuterium in**
  - Phase-conjugating and self-targeting
  - Producing time-reversal zones
  - Generating quasi-nuclei of H<sup>+</sup> ions (protons)
- **Variation in GR detector readings**
- **Experimental results predictable by**
  - LW-TW transduction and time-reversal zones
  - Varying time-density charging on GM tubes
  - Variation in GM tube experience histories
  - Time-reversal zones generating electronuclear interactions and quasi-nuclei of H<sup>+</sup> clusters

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## Experimental LW Emission Phenomena in Electrolysis

- ▶ Anomalous radiation from electrolysis in ionization processes
  - Two experiments producing excess power
  - Dental x-ray film showed exposure
  - Simultaneous control study: No exposure
  - 20 experiments without excess power: No exposure
- ▶ Excess energy strongly indicates excess film exposure
- ▶ GM and NaI detector reaction when electrolysis ongoing w/heavy water
  - Several Geiger Muller (GM) tubes gave anomalous detection
  - Reached 73  $\sigma$  above normal background counts
  - No anomalies when experiment off
- ▶ GM tube detects anything which causes its internal gas to ionize
  - Nuclear radiation is "ionizing" radiation
  - Transduced x-ray and gamma radiation is "ionizing" radiation
  - Sufficient LW-TV transduction ionizes GM gas
- ▶ Time History of detector involved
  - Some GM detectors show anomalous high counts, some do not
  - Time histories of GM detectors vary appreciably
  - Time histories of film vary minimally
- ▶ Experiments consistent with time-density charging, LW-TV transduction, and new conservation of energy law

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\* Melvin H. Miles and Benjamin F. Bush, "Radiation Measurements at China Lake: Real or Artifacts?"  
Proc. ICCF-7, Vancouver, BC, Canada, Apr. 1998, p. 101.

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## ***A New Conservation of Energy Law***

- **Physics conserves total "energy and mass-energy"**
- **Now also must consider "time-energy"**
- **Conserve total mass-time-energy (spatiotemporal energy)**
- **Let  $E_T$  = total energy,  $E_M$  = mass energy,  $E_E$  = ordinary energy, and  $E_t$  = time energy. Then**

$$E_T = E_E + E_M + E_t$$

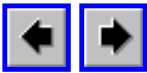
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$$(kE_t \Rightarrow E_E > 0) \Rightarrow E_T > (E_M + E_E)$$

- **If some  $E_t$  is transduced into  $E_E$ , the experiment will violate the old spatial mass-energy conservation law**

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## QUESTIONS ON CARCINOGENS AND EM RADIATION



### ■ UNRESOLVED QUESTIONS ON EM RADIATION

- DOSAGES
- ACTIVE MECHANISMS
- REPLICATION DIFFICULTIES
- MEASUREMENT DIFFICULTIES
- WHERE, WHEN, HOW ILL EFFECTS OCCUR

### ■ SIMILAR QUESTIONS EXIST ABOUT EVERY CARCINOGEN

### ■ SCIENCE REALLY DOES NOT UNDERSTAND THE MECHANISMS OF A SINGLE CHRONIC DISEASE, INCLUDING CANCER

- FACTORS SUCH AS MIND, STRESS, SPONTANEOUS  
REMISSION, PLACEBO EFFECTS, AND COMBINATIONS OF  
FACTORS ARE PARTICULARLY TROUBLESOME
- GENERATION OF THE PLACEBO EFFECT BY THE  
REGENERATION & RECOVERY SYSTEM IS UNRECOGNIZED

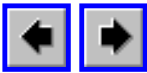


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## **QUESTIONS ON CARCINOGENS AND EM RADIATION**

---

- **UNRESOLVED QUESTIONS ON EM RADIATION**
  - **DOSAGES**
  - **ACTIVE MECHANISMS**
  - **REPLICATION DIFFICULTIES**
  - **MEASUREMENT DIFFICULTIES**
  - **WHERE, WHEN, HOW ILL EFFECTS OCCUR**
- **SIMILAR QUESTIONS EXIST ABOUT EVERY CARCINOGEN**



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## **CHRONIC DISEASE PUZZLING**

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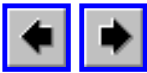
- SCIENCE REALLY DOES NOT UNDERSTAND THE MECHANISMS OF A SINGLE CHRONIC DISEASE, INCLUDING CANCER
- MANY TROUBLING FACTORS EXIST
  - **MIND**
  - **STRESS**
  - **SPONTANEOUS REMISSION**
  - **PLACEBO EFFECTS**
  - **COMBINATIONS**
- GENERATION OF THE PLACEBO EFFECT BY THE CELLULAR REGENERATION SYSTEM IS UNRECOGNIZED



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# ***Cancer Characteristics***

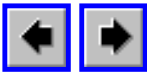
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- Not one disease, but a whole range
- Starts in damaged aerobic cell
- Cell shakes off body's central control
  - **Starts uncontrolled division**
  - **Becomes a lump**
- Can send forth cancer cells
  - **Through blood**
  - **Through lymph**
- Form metastases (secondary tumors)
- Often become anaerobic

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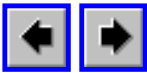
# ***Solving a Cancer Enigma***

- **An enigma has been failure of immune system to attack some tumor cells**
  - Suppressor cells may curb immune system?
  - Tumor may lack antigens normally identified by the immune system?
- ***Promotion of damaged cell to cancer is usually ordered by cellular control system***
  - *Regenerative and recovery system forces cell back toward anaerobe*
  - *First step breaks free from central growth*
  - *Control continues to recognize cell as self*

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## **CANCER: CHARACTERISTICS**

- **NOT ONE DISEASE BUT A WHOLE RANGE**
- **STARTS IN ORDINARY (AEROBIC) CELL**
- **CELL SHAKES OFF BODY'S DICTATORIAL CONTROL\***
- **STARTS UNCONTROLLED DIVISION**
- **BECOMES A LUMP**
- **CAN SEND FORTH CANCER CELLS**
  - **THROUGH BLOOD**
  - **THROUGH LYMPH**
- **THESE FORM METASTASES (SECONDARY TUMORS)**
- **OFTEN BECOME ANAEROBIC (NON-OXYGEN USING)**
- **ENIGMA IS FAILURE OF IMMUNE SYSTEM TO ATTACK SOME TUMOR CELLS**
  - **SUPPRESSOR CELLS MAY CURB IMMUNE SYSTEM**
  - **TUMOR MAY LACK ANTIGENS NORMALLY IDENTIFIED BY THE IMMUNE SYSTEM**

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*\*R&R system forces cell back toward anaerobe*

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## PORTABLE PRIORE TECHNOLOGY UNIT

- ★ **FACT: DISEASE-SPECIFIC VACUUM ENGINE PRESENT FOR ANY CELLULAR DISEASE, BY WHEELER'S PRINCIPLE**



- *DISEASE CAN BE REVERSED BY CREATING AMPLIFIED VACUUM ANTI-ENGINE (BEARDEN'S PRINCIPLE)*
- *ANTI-ENGINES CREATED BY PUMPING THE NONLINEAR CELLS WITH LONGITUDINAL EM WAVES*



- ★ **PRIORE UTILIZED A PLASMA TO PHASE CONJUGATE AND "INFOLD" MULTIPLE BIDIRECTIONAL LONGITUDINAL EM PUMP WAVES**



- *MULTIPLE FREQUENCIES MIXED IN A ROTATING PLASMA*
- *PHASE CONJUGATES ADDED BY THE PLASMA*
- *INFOLDED MIX INTO STRONG PULSED DC MAGNETIC FIELD, WHICH CARRIED IT INTO ATOMIC NUCLEI*
- *PUMPED ALL NONLINEAR CELLULAR COMPONENTS TO PRODUCE AMPLIFIED, SPECIFIC VACUUM ANTI-ENGINE*



- ★ **NEGATED THE CUMULATIVE CELLULAR DEDIFFERENTIATION ORDER GENERATED BY LONG-TERM HYPOXIA. TUMOR CELLS REVERTED TO NORMAL CELLS.**
- ★ **SCRUBBED OUT CUMULATED PRECANCEROUS STATE**
- ★ **RESTORED THE IMMUNE SYSTEM TO HIGH FUNCTIONING**
- ★ **NO EXCESSIVE TRAUMA TO TREATED ANIMAL**



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## ***Lisitsyn's Report: Brain Code Broken***



- ★ THEORY DEVELOPED AND FITTED
- ★ HYSTERESIS MEMORY LOOP
- ★ CONTROLLED EM INDUCTION
  - IMAGES
  - SENSATIONS
  - PREDETERMINED EMERGENCE
- ★ 23 EEG BANDS
  - UP TO  $8.1 \times 10^{20}$  HZ
  - 11 INDEPENDENT CHANNELS

© 1977, 1978, 1984 TC DE/NEED

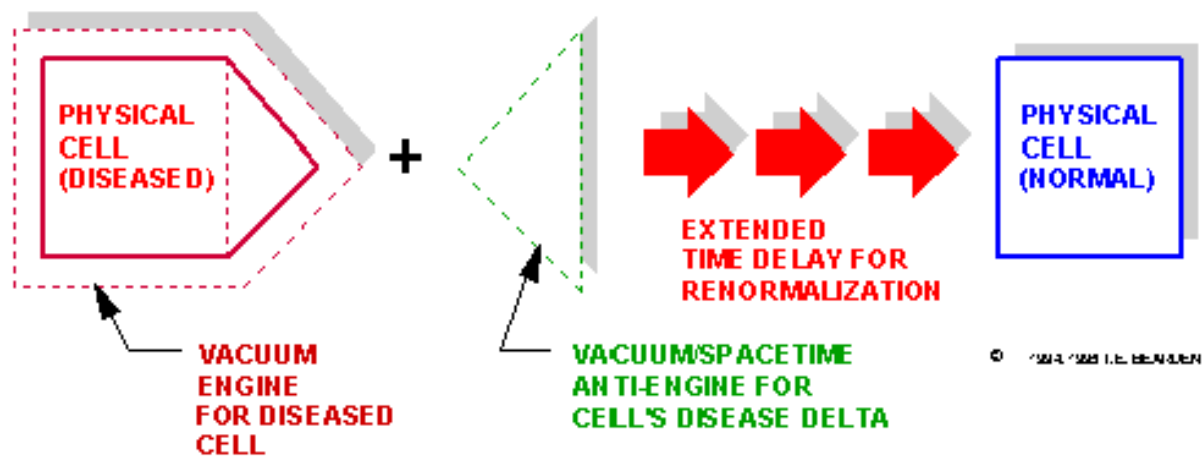
S.E. Lisitsyn, "New Approach to the Analysis of Electroencephalograms,"  
DDC Report AD73005, p.16-25.

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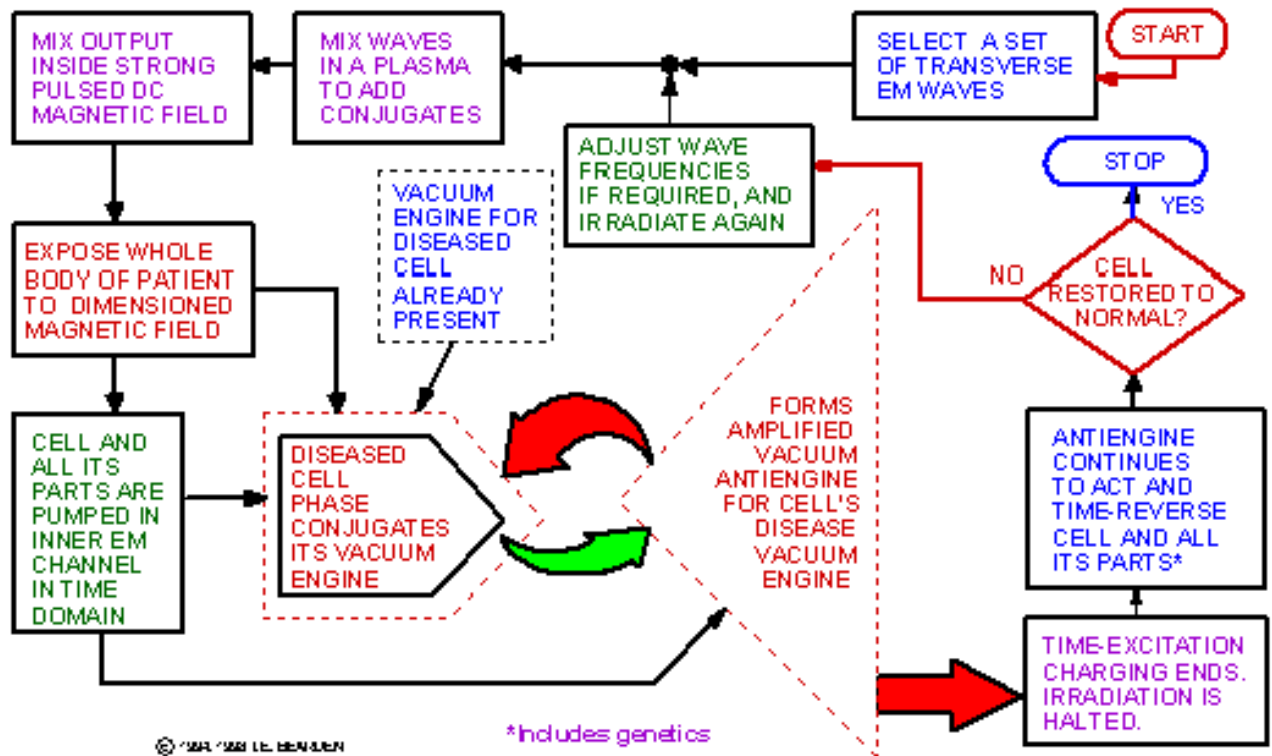
## ANTI-ENGINE FOR CELL'S DEVIATION REVERSES CELL BACK TO NORMAL



By pumping the internal EM channel, process is dramatically accelerated.  
This is the body's normal recovery mechanism, within its limits.

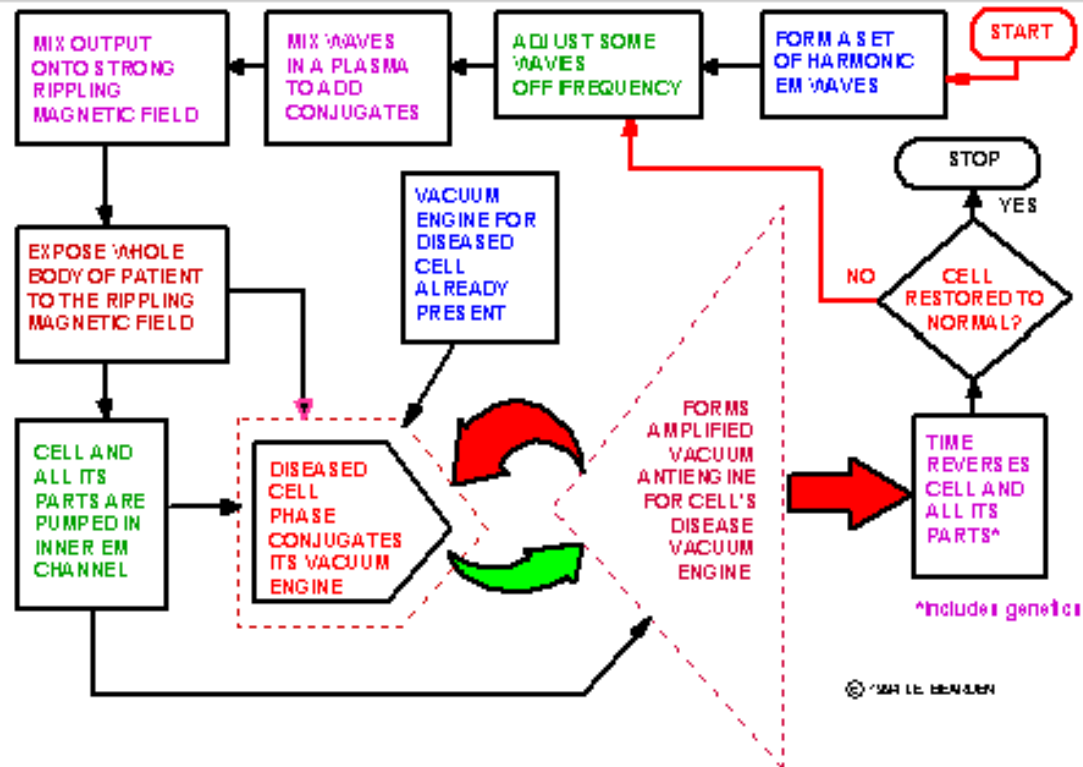


### **Time-reverses the cells back to normal state**

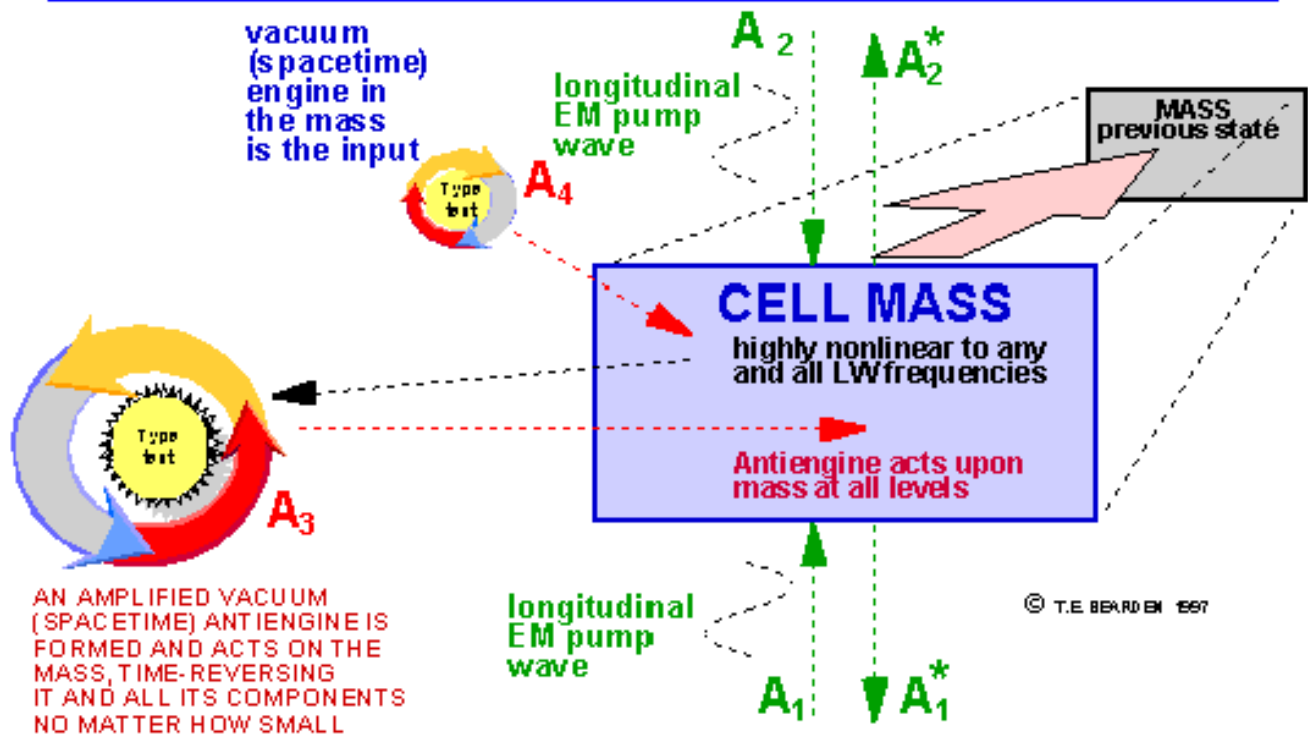




# Priore's Therapeutic Methodology

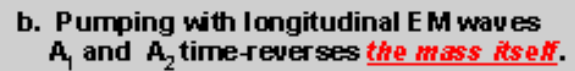
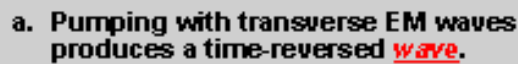


## Pumping with Longitudinal EM Waves Time-reverses the Mass



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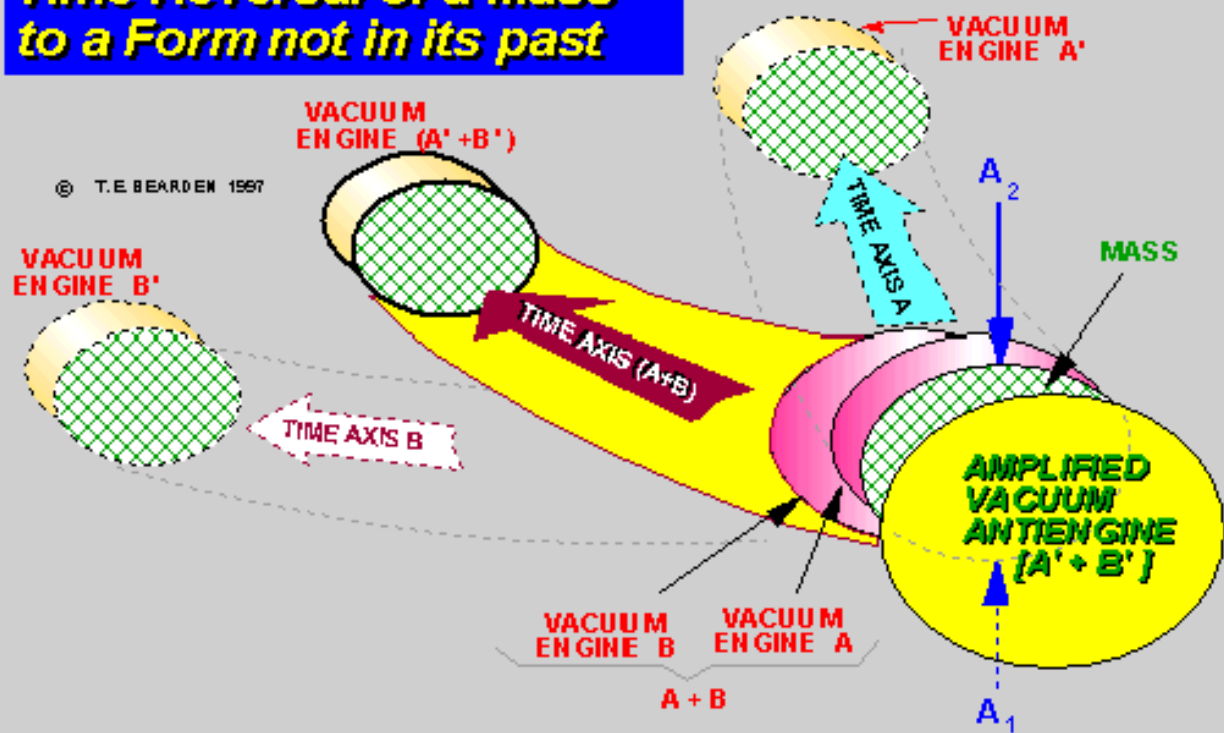
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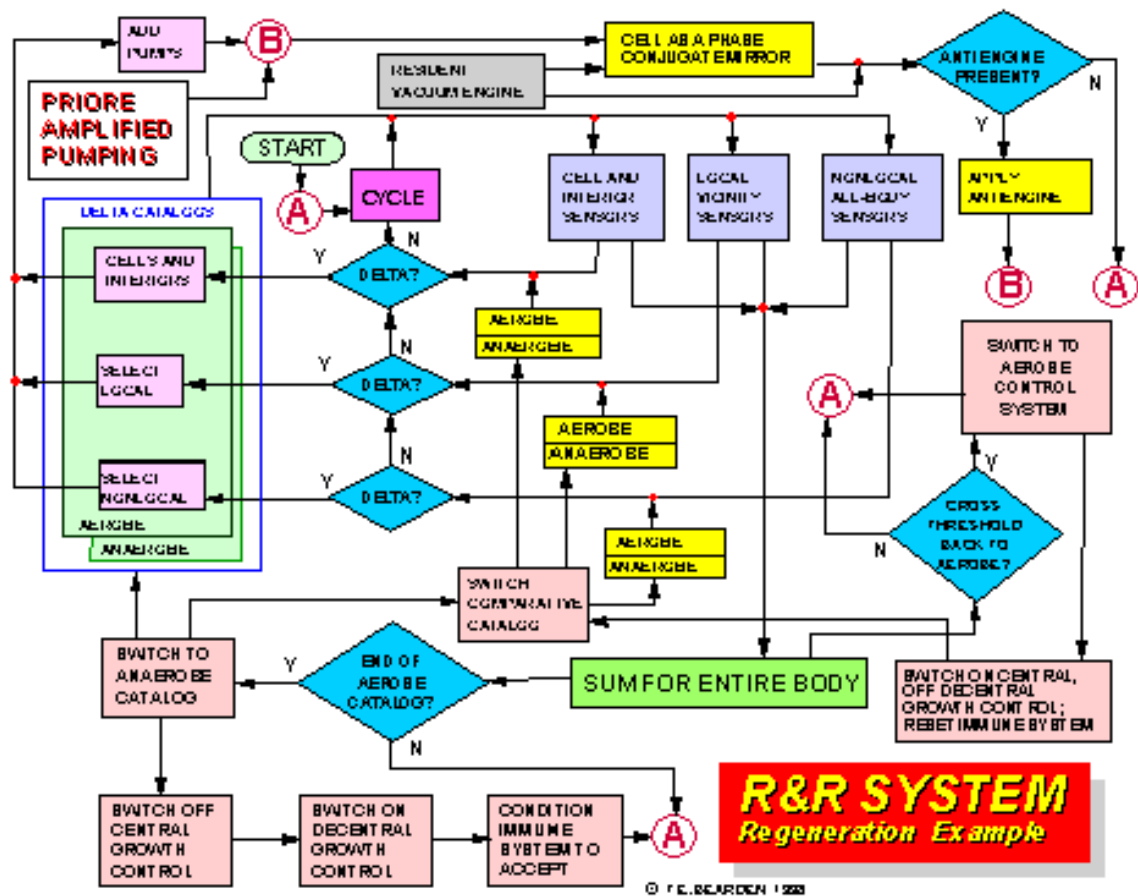
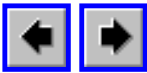


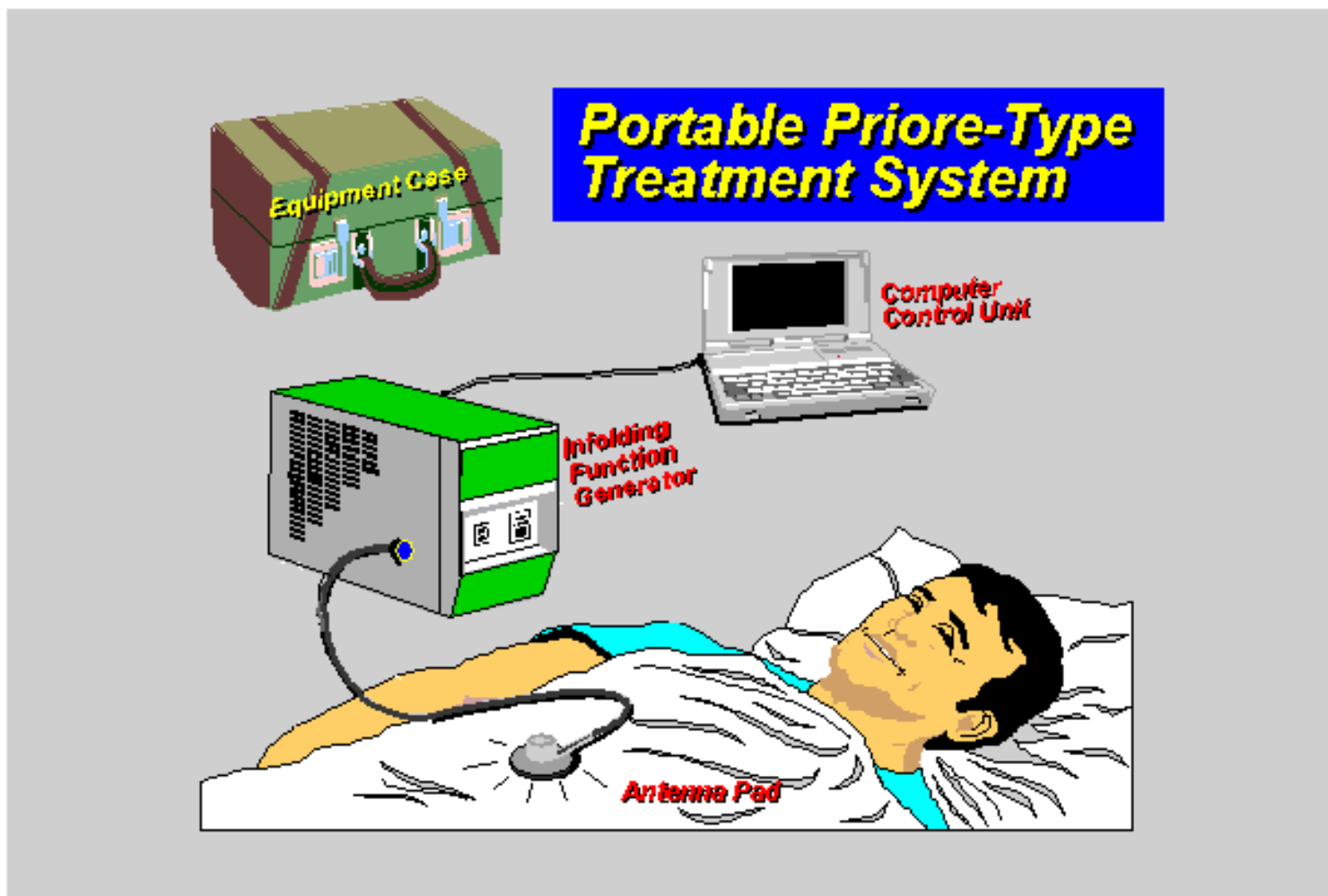
## Time Reversal of a Mass to a Form not in its past

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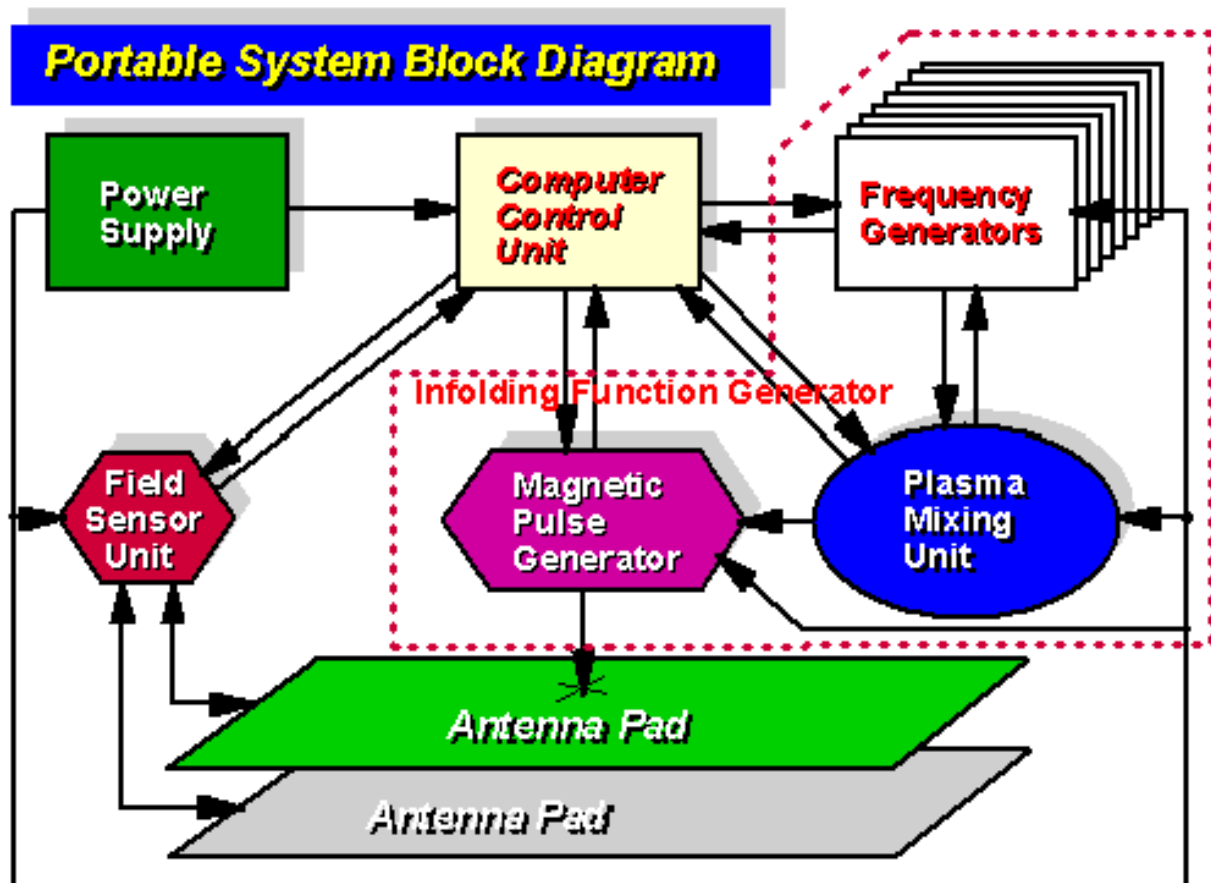
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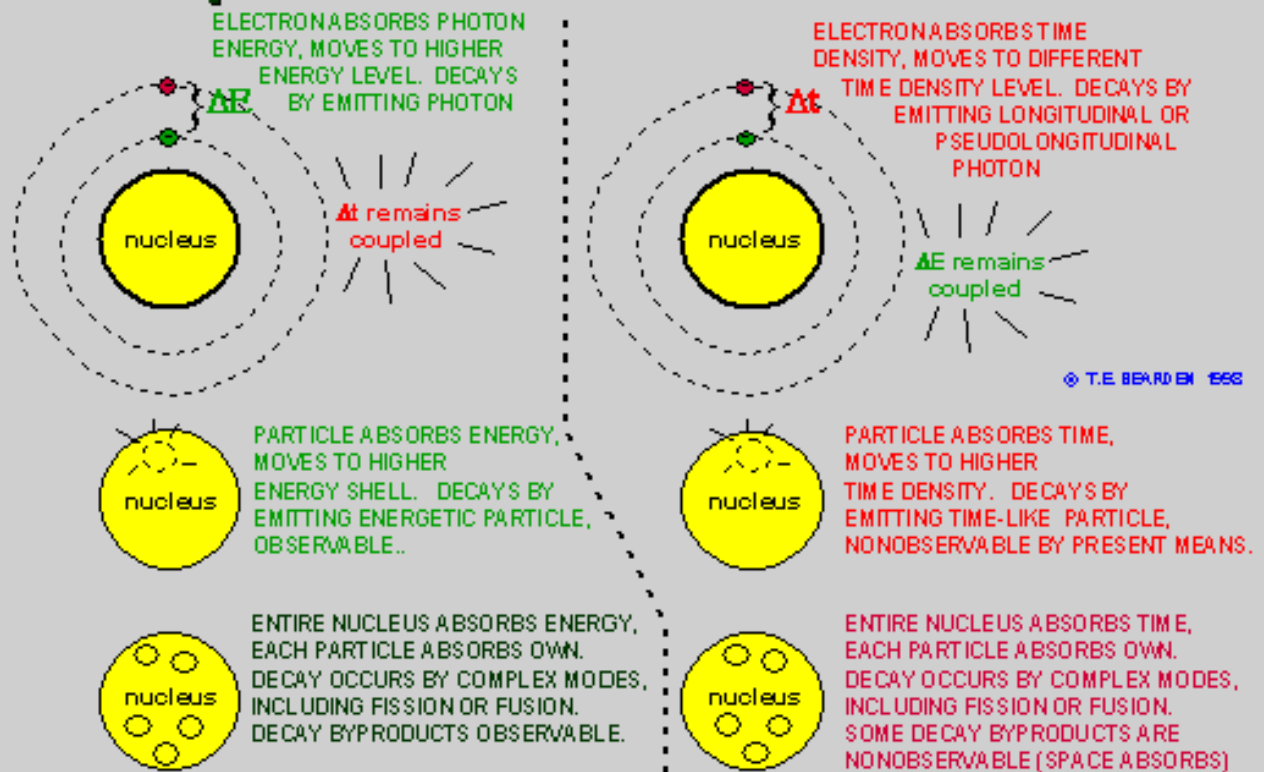


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# Absorption and emission reactions





# Absorption and emission reactions

## TRANSVERSE PHOTON

ELECTRON ABSORBS PHOTON ENERGY, MOVES TO HIGHER ENERGY LEVEL. DECAYS BY EMITTING PHOTON, REMOVING  $\Delta t$

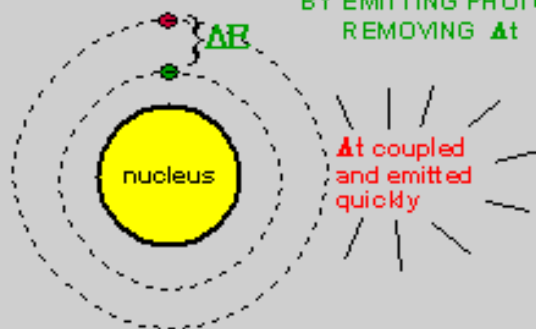


Figure A. Excited energy density level in one jump.

## STREAM OF TIME-POLARIZED PHOTONS

ELECTRON ABSORBS TIME DENSITY, MOVES TO  $1/c^2$  DIFFERENT TIME DENSITY LEVEL. DECAYS BY EMITTING LONGITUDINAL OR PSEUDOLONGITUDINAL PHOTONS

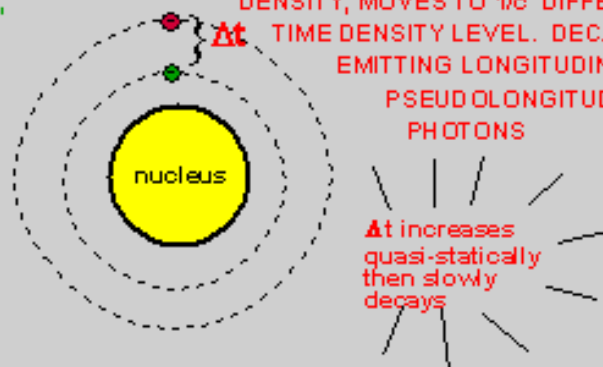
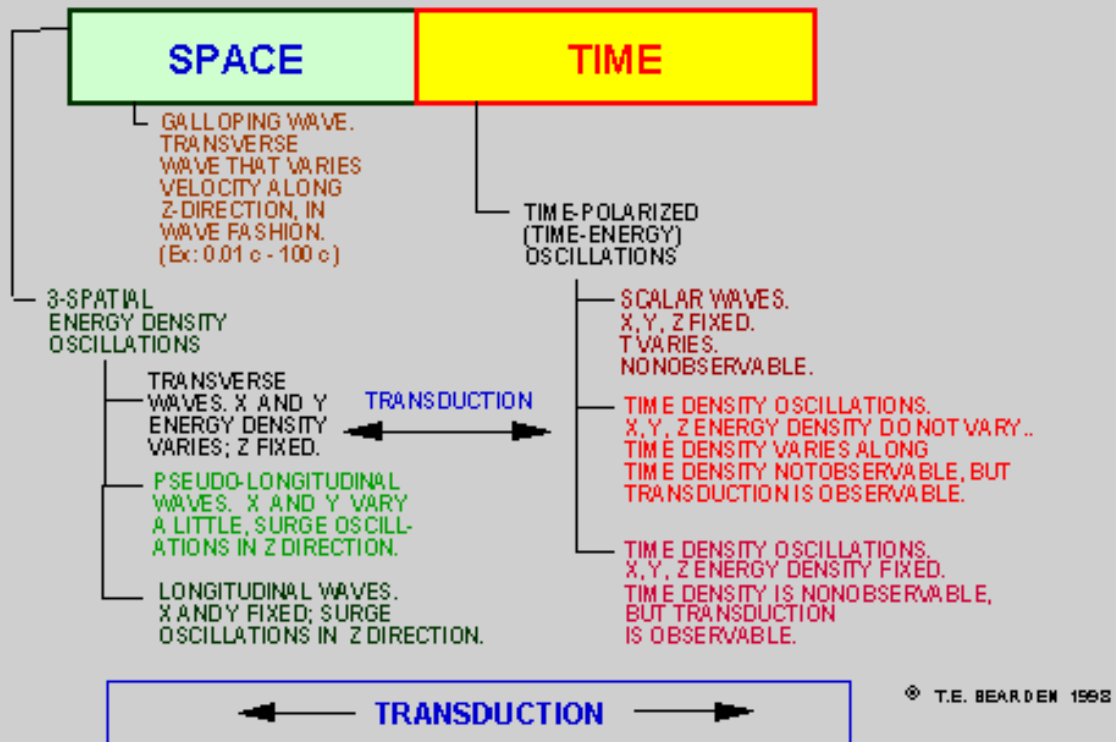
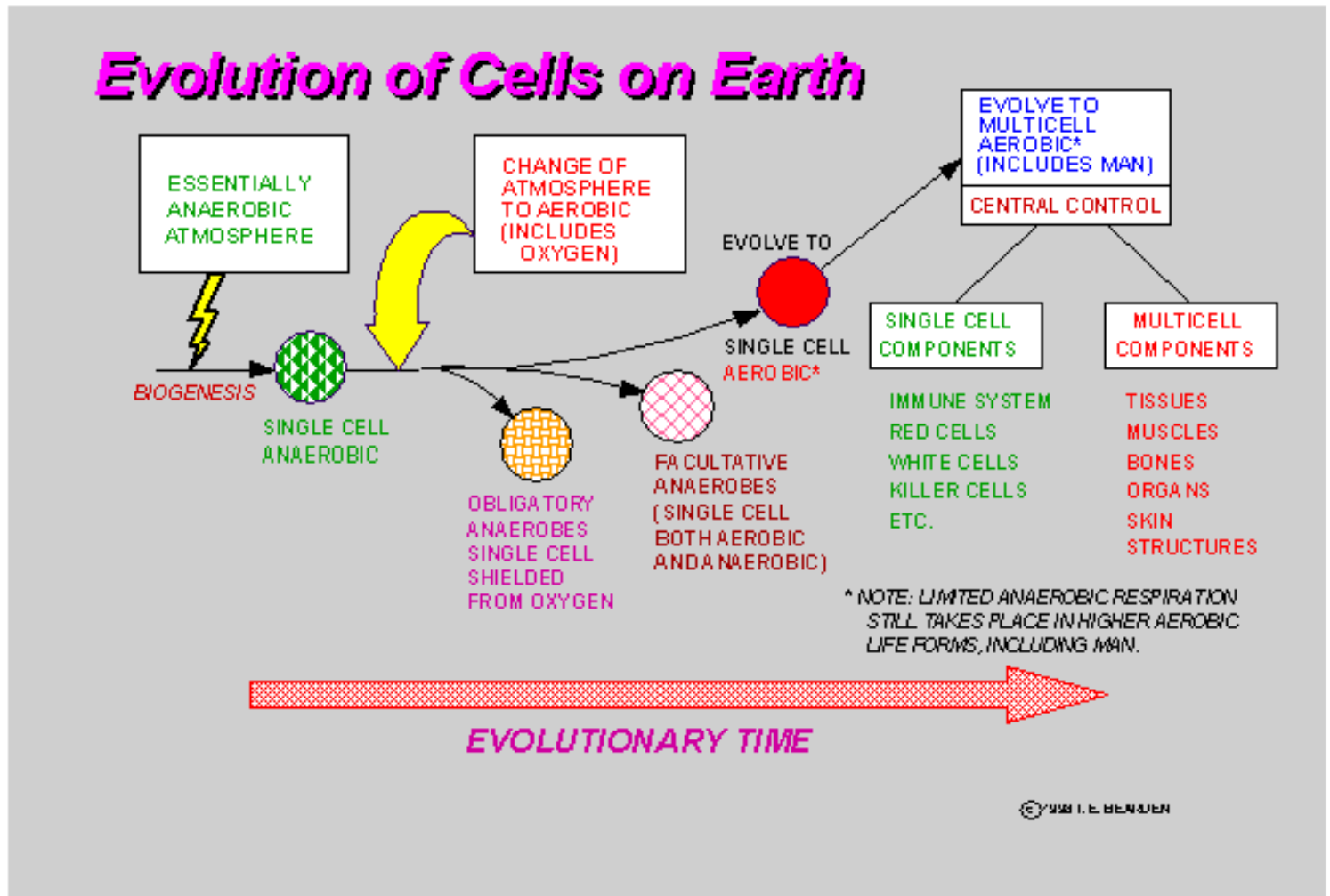


Figure B. Excited time density level significant only after enormous number of increases.

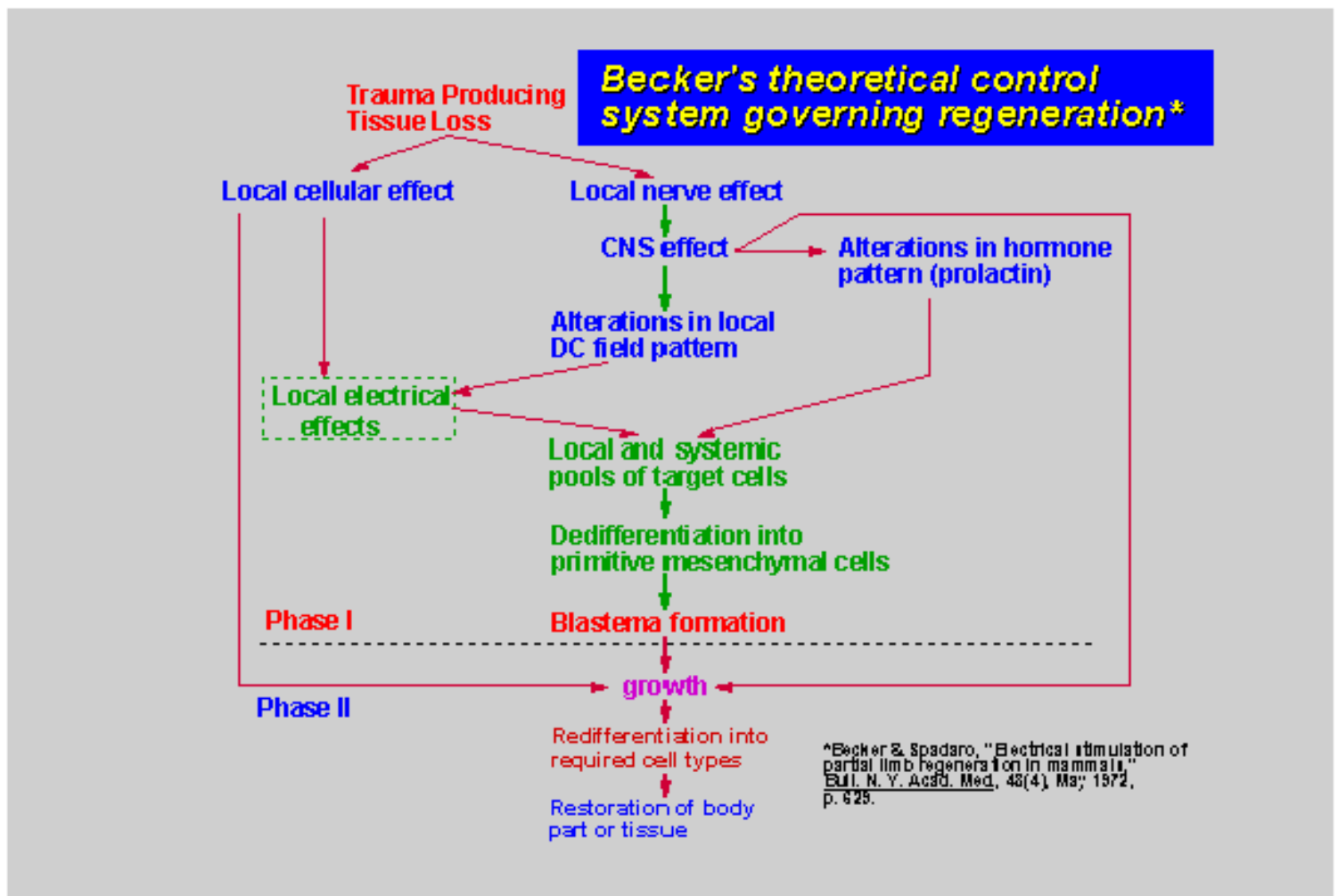
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# Some EM Waves in Spacetime



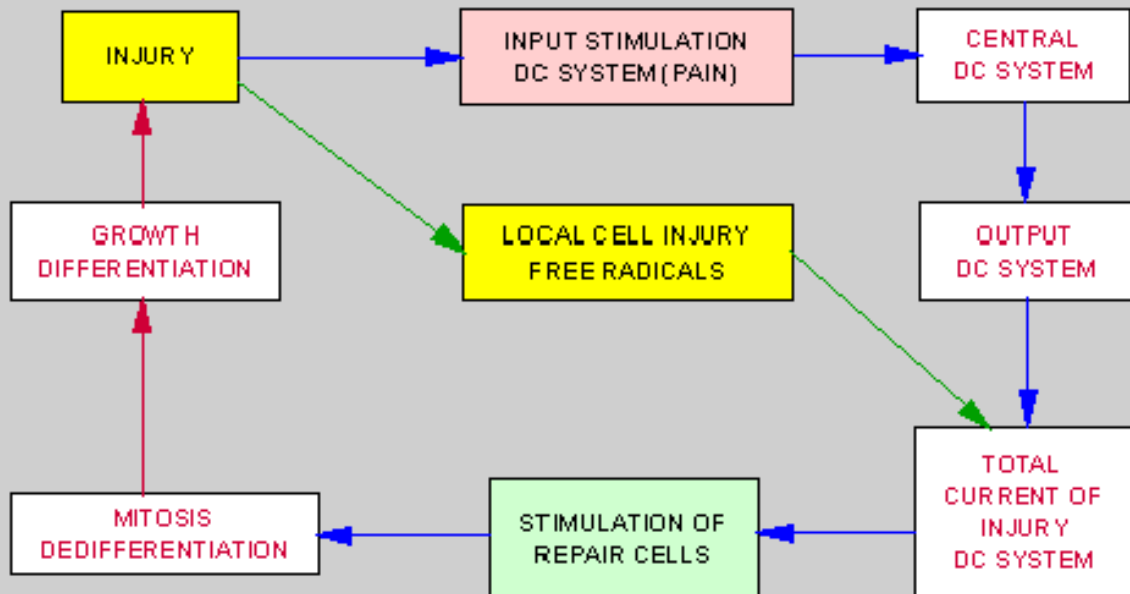


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## ***Becker's theoretical DC control system involved with response to injury\****



\*Robert O. Becker, "The significance of bioelectrical potentials," *Bioelectrochemistry and Bioenergetics*, Vol. 1, 1974, p. 191.

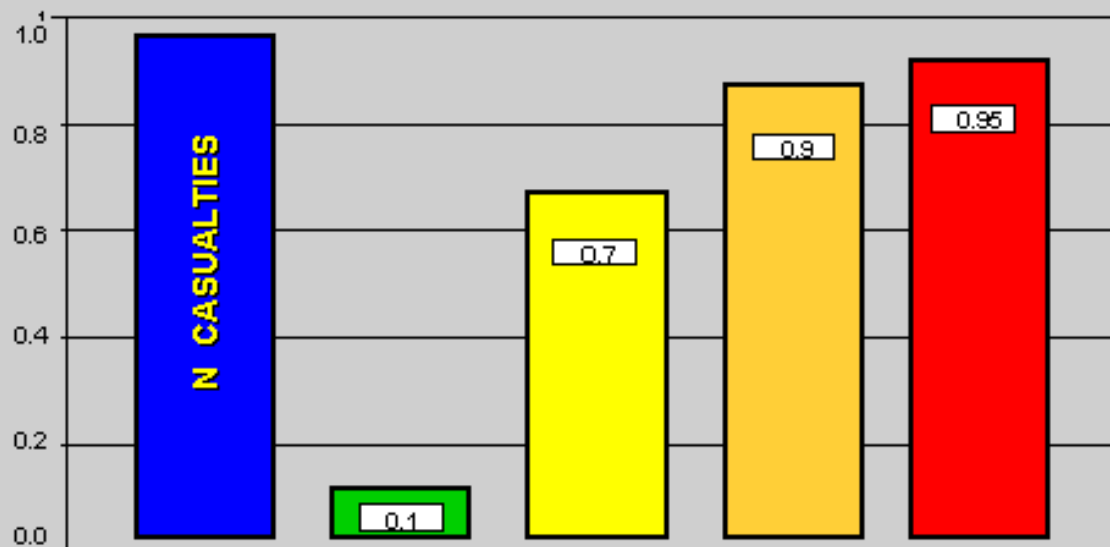
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# Fraction of Casualties Surviving

FRACTION SURVIVING

N = 1 - 40 million



CASUALTIES

TYPE TREATMENT RECEIVED

EXPRESSED IN FRACTION SURVIVING

- With conventional treatment
- With 1st generation P-treatment
- With 2nd generation P-treatment
- With 3rd generation P-treatment

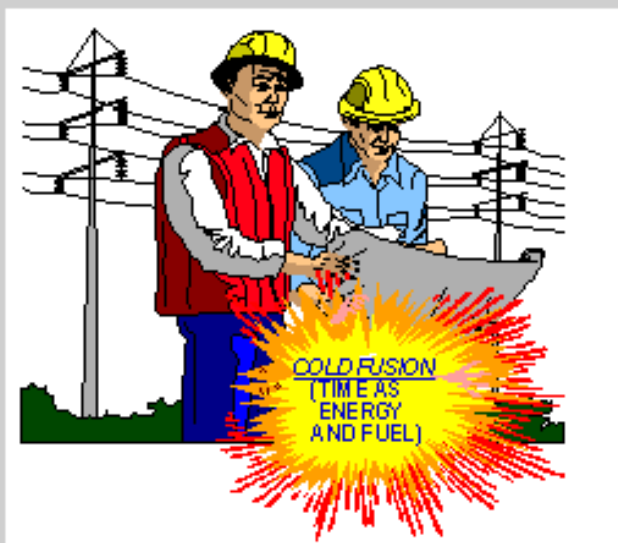
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## ***"Time as fuel" is the future***

- **Present energy science is insufficient**
- **Eventually will use energy locked up in time itself**
- **Cold fusion will provide entrée**
- **Cold fusion has evidence of time-as-energy**
- **Theorists and experimentalists should examine the implications**
- **Must revise foundations of Electrodynamics**

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# A National Report on America's Energy Crisis

Remarks by U. S. Secretary of Energy Spencer Abraham

**U. S. Chamber of Commerce, National Energy Summit March 19, 2001**

## **Opening Remarks**

I would like to congratulate the U. S. Chamber of Commerce for convening this two-day National Energy Summit and I appreciate your invitation to participate. As we all know, the topic of energy is as timely as the day's headlines. In just my first eight weeks as Energy Secretary, California has faced almost daily power alerts. Rising natural gas prices have punished consumers with bills that, in some cases, are double or triple last winter's. And forecasts for this summer suggest the possibility of rolling blackouts.

The good news is that America's energy problems can be solved. The bad news is that the situation in California is not isolated, it is not temporary, and it will not fix itself.

America faces a major energy supply crisis over the next two decades. The failure to meet this challenge will threaten our nation's economic prosperity, compromise our national security, and literally alter the way we live our lives.

America has heard these dire warnings before - in fact, they seem to be a recurring theme in our nation's energy discussion, almost since "Colonel" Drake made the first oil strike near Titusville, Pennsylvania in 1859. "The amazing exhibition of oil," advised the State Geologist of Pennsylvania, "[is] a temporary and vanishing phenomenon-one which young men will live to see come to its natural end. " That was in 1885.

Around the same time, John Archbold - who succeeded John D. Rockefeller as head of Standard Oil - joked about the prospects for oil discoveries in Oklahoma: "Are you crazy?" Archbold said. "I'll drink every gallon produced west of the Mississippi. "

I don't know if anyone ever called Mr. Archbold on that pledge. But for whatever reason, in 1914 the U. S. Geological Survey predicted that the U. S. would soon exhaust its available oil supplies. They issued the same warning in 1926. And again in 1939. And in 1949.

All of these warnings have proven false. Despite all these expert predictions, the world has not run out of oil or other resources. And yet here we are, faced with the most serious energy shortage since the days of oil embargoes and gas lines.

My point is, America's current energy supply crisis is not due to some inevitable neo-Malthusian depletion of resources. The United States - and our North American and hemispheric neighbors-are blessed with a rich abundance of natural resources. It's political leadership that has been scarce.

For the past eight years, Washington sat on the sidelines as our nation's energy needs mounted. During the 1990s, the Clinton Administration employed a policy of taxing demand, limiting supply, and ignoring the rapidly expanding needs of the future.

Their energy strategy boiled down to: you can't find it . . . you can't transport it . . . and even if you get it, we don't want you to use it.

Through neglect or complacency or ideology, this approach has led us to the crisis we face today.

The Bush Administration is fully prepared to respond to the broad set of challenges we inherited. But we must be candid with the American people about the magnitude of the problem - which is what I'd like to talk about today.

## **America's Energy Supply Challenges**

Three overriding facts starkly define the challenge of America's energy needs over the next two decades:

First, demand for energy is rising across the board, but particularly for natural gas and electricity;

Second, supplies are being limited by a regulatory structure that, in many respects, has failed to keep pace with advances in technology and an uncertain political environment that often discourages investment in desperately needed facilities;

And third, our energy infrastructure - that network of the generators, transmission lines, refineries and pipelines that convert raw resources into usable fuel - is woefully antiquated and inadequate to meet our future needs.

Unless these challenges are addressed, America's energy supply will be continually at risk . . . our citizens will encounter blackouts and other lifestyle-altering disruptions . . . and our economy will be hobbled by rising energy prices. Let me briefly outline some of the major issues on the horizon:

## **Oil: Rising Consumption, Accelerating Dependence**

In the next 20 years, according to estimates by the Energy Information Administration, America's demand for oil is projected to increase by 33 percent. Yet as consumption surges, U. S. production continues to drop precipitously. We now produce 39 percent less oil than we did in 1970, losing nearly 4 million barrels a day in the process. And unless energy policy is changed, production will slip further - to just 5.1 million barrels per day by 2020 - down from a high of 9.4 million a day 30 years ago. This widening gap between demand and domestic supply will make us increasingly dependent upon foreign imports. Back in 1973-at the height of the oil crisis - America imported just 36 percent of its oil from abroad.

Today, we import 54 percent. And, if we allow this trend to continue, we will soon be forced to look abroad for some 64 percent of our oil. This will put more power in the hands of foreign suppliers - power they are not reluctant to use, as we just saw when the OPEC cartel decided to reduce oil output by one million barrels a day.

While this administration does not agree with OPEC's decision, that decision demonstrates the importance of increasing America's production of oil. Securing an affordable, reliable and adequate supply of crude is a critical challenge. But it is only half the oil story.

Since 1980, the number of American refineries has been cut in half. There hasn't been a new refinery built in the United States in over 25 years. New regulatory interpretations limit the ability of existing refineries to expand capacity. Add to that regulations that require the production of more than 15 different types of gasoline-and you have a refining industry strained to capacity, leaving us dangerously vulnerable to regional supply disruptions and price spikes.

Refineries are so constrained that when President Clinton made the politically symbolic gesture of releasing 30 million barrels of oil from the Strategic Petroleum Reserve last fall, that oil had to be shipped overseas to be refined.

### **Natural Gas: Rapidly Rising Demand; Constraints on Supply**

Many of the same issues confront the future of natural gas. America's demand for natural gas is projected to rise even more rapidly than oil. If Department of Energy projections are correct, by 2020 Americans will consume 62 percent more natural gas than we do today. More than 9 out of 10 of the announced new electric generating plants will be fired by natural gas.

This approaching wave of new demand begs the question: Do we have an energy policy and a regulatory structure capable of meeting our natural gas needs?

Consider just a few constraints in this market.

Right now, an estimated 40 percent of potential gas resources in the United States are on federal lands that are either closed to exploration or covered by severe restrictions. The last lease sale in the some areas of the Gulf of Mexico was more than a decade ago. New discoveries of natural gas in the United States have fallen for three straight years, creating increasing pressure for more imports.

The notion that we can rely so heavily on natural gas . . . maintain severe restrictions on exploration . . . and still enjoy low prices is a dangerous assumption.

Even if we find the supplies, moving that gas to market will require an additional 38,000 miles of transmission pipeline and 255,000 miles of distribution lines-at an estimated cost of \$120-\$150 billion.

Today's pipeline system can hardly handle the supplies we know exist. Alaska's Prudhoe Bay, for example, produces about 8 billion cubic feet of natural gas a day - approximately 13 percent of America's daily consumption.

But that gas never reaches the market. Instead, it is just pumped back into the ground, waiting until a pipeline is built to connect the Alaska fields to the U.S./Canada distribution system.

## **Electricity: Powering the Information Economy**

As everyone knows, we also face a real challenge in generating enough electricity to light out homes and run our businesses. Over the next 20 years, the Department of Energy estimates that electricity demand in the United States will increase by 45 percent. That rising growth rate will require the construction of over 1,300 new power plants-about 65 every year.

Yet, the last time we added that much power was 1985.

Furthermore, there is reason to believe that this could turn out to be a conservative estimate. During the 1990s, electricity consumption far outstripped projections, driven by the energy-hungry information economy. Some experts calculate that the demands of the Internet already consume some 8-13 percent of electricity. If demand grows at just the same pace as during the last decade, we'll need nearly 1,900 new plants by 2020-or more than 90 every year-just to keep pace.

Hundreds of new generating plants will place even greater pressure on our already strained and aging power grid. America's network of transmission lines, substations and transformers was built when utilities were tightly regulated monopolies providing service to assigned regions. Interconnections between suppliers were strictly an emergency backup measure to guard against rare service interruptions. The system was simply not designed for long-haul swapping of power in a highly competitive market.

Consumers are already feeling the impact of a transmission systems stressed by rising demand. Transmission bottlenecks contributed to the blackouts that have swept through California and to price spikes in New York City last summer that cost consumers an estimated \$100 million.

## **Coal, Nuclear, and Hydro-Electric Power**

Coal has historically been American's number one source for affordable electricity; it currently powers half of America's electricity generators. And at today's recovery rates, our nation has enough coal to keep those plants running for the next 250 years.

Coal generators have already been called upon to make broad reductions in emissions. The Bush Administration supports those efforts-and we will back it up with greater incentives for investment in clean coal technology.

But the administration will not regulate coal out of existence . . . and we will not support measures that will threaten electricity supplies and significantly raise electricity prices. President Bush made the right decision last week not to impose new federal mandates on the emissions of carbon dioxide. If America is to have reliable electricity over the next 20 years, coal must continue to play a major role.

But, coal is not the only energy source facing an uncertain future. There hasn't been a new nuclear power plant permit granted since 1979. Many of the 103 existing nuclear plants are not even expected to file for a renewal of their licenses as they expire over the next 15 years.

Even hydroelectric power generation is expected to fall sharply.

Re-licensing a hydro facility can take a decade or more and cost millions. And now, even though consumers are faced with potential blackouts and chronic electricity shortages in the West, activists and some political leaders want to breach one or more of the four federal dams on the Snake River to help young salmon, on their trek to the sea.

## **The Dangers of Complacency**

What are the dangers of complacency in light of these challenges? How does it all add up for our economy and our citizens?

This nation's last three recessions have all been tied to rising energy prices - and there is strong evidence that the latest crisis is already having a negative effect.

The National Association of Manufacturers estimates that soaring fuel prices between 1999 and 2000 cost the U.S. economy more than \$115 billion-shaving a full percentage point off our Gross Domestic Product. A January survey of its 5,500 members reveals that nearly one quarter were forced to curtail operations.

During a two-week period this past January, Californians lost an estimated \$2.3 billion in wages, sales and productivity. Layoffs are already hitting workers in the West as companies shift production to states with more reliable energy sources. Then there are the jobs that will never be created.

Intel's CEO Craig Barrett announced that the world's leading chipmaker won't be expanding in California: "As long as California is a Third World country," Barrett said, "we won't build \$2 billion manufacturing plants here."

The Food and Agricultural Policy Institute reports that farmers are likely to see their income drop 20 percent over the next two years due to higher energy costs.

Rising energy costs are hitting every family's checkbook, primarily affecting those who can afford it least. Gas bills for many homeowners in the Washington, DC area more than tripled this year. Some residents are reporting that their heating bills are higher than their food bills this winter.

The power crisis isn't just pinching our wallets, it's changing the way we live our lives. In California, power outages have shut down traffic lights, darkened schools and closed businesses. The governor has ordered local police to patrol the streets-not for criminals, but to make sure businesses keep their lights dimmed.

But California is not the only state facing a mismatch between supply and demand. With electricity shortages predicted for New York City and Long Island this summer . . . low capacity margins threatening electricity reliability in the Midwest, Southeast and Northern Plains states . . . and strained refinery capacity in the Midwest, Americans across the nation are feeling the energy squeeze.

## **The Need For A National Energy Policy**

Rising demand . . . tightening supplies . . . an aging power infrastructure . . . a decade of neglect from Washington: These are the trends that define America's emerging energy needs.

President Bush has committed this administration to meeting these challenges - a job that begins with the urgent task of developing and implementing a long-term national energy policy.

To accomplish this, President Bush created an Energy Task Force headed by Vice President Cheney. He

has asked us to define a clear strategy - a strategy that will allow environmentally responsible exploration and recovery of our domestic resources . . . enhance our commitment to conservation and energy efficiency . . . and encourage investment in new technology to further the development of renewable energy sources.

I wish I could say that the energy crisis now sweeping the nation has shocked the political system into action. But like other political discussions in recent years, the debate over energy seems as deeply polarized as ever.

On one end of the spectrum, some activists propose what amounts to a "zero tolerance" policy toward exploration and cling to the quixotic idea that new, undiscovered sources will somehow allow us to meet our energy needs. On the other end, some advocates place an almost limitless faith in special tax breaks for this favored activity or subsidies for that preferred industry.

The two extremes in our energy debate are founded on several enduring myths - myths that today conspire to block any true advance toward a rational and stable energy policy in the United States. Here are a few of the more prominent ones.

**Myth Number 1:** It is impossible to balance energy exploration and environmental protection.

Advances in technology have brought us a long way from the days when wildcatters punched holes in the ground based on the hunch they might hit a gusher. But from a regulatory standpoint, our view of oil and gas exploration hasn't changed much since we saw Jed Clampett strike "black gold" and split for Beverly Hills.

Today, satellites and computers are the tools of choice in the exploration business. Geologists can bounce acoustic and electrical vibrations off the earth's inner depths, gather the resulting mass of data into powerful computers and then create three dimensional and even four dimensional maps of resource fields miles below the surface.

Armed with these pinpoint accurate images, companies employ advanced equipment to drill vertically, horizontally and around corners-allowing us to access supplies from previously unimaginable depths, up to six miles away.

The marriage of oil and gas exploration with cutting-edge technology means fewer rigs, fewer roads and fewer pipelines. Drilling operations that required 65 acres in the 1970s need only 10 acres today. Technological improvements in just the past 15 years have generated success rate increases of 50 percent. America's national energy policy must reflect these staggering advances that have revolutionized the way we develop our resources.

**Myth Number 2:** All our current problems are due to an energy industry that is engaged in a massive conspiracy to gouge consumers by limiting supply to drive up prices.

This myth has been punctuated by calls for investigations into everything from last summer's Midwest gasoline price spikes, to recent allegations that power generators in the West have been withholding electricity. We have a fair and objective process for judging these claims-and action will be taken when it is merited. Over the past two weeks, for example, the Federal Energy Regulatory Commission ordered power companies to rebate some \$124 million to California utilities. Meanwhile, the Federal Trade Commission recently cleared gasoline suppliers of all charges relating to last summer's price increases.

But charges of price gouging largely miss the point. There is no magic source of supply; no hidden pool of energy that can be turned on and off like a faucet. California-and other power-strapped states-will never solve the power crises they confront until they resolve the conflict between demand and supply.

Earlier this year, one company proposed building a \$400 million power plant in California that would have provided enough additional electricity to light 600,000 homes in energy-starved Silicon Valley. The company pledged to plant 800 new trees to beautify the area. They proposed cloaking the power station in a brick facade to make it essentially indistinguishable from a high-rent office complex. They even promised to help maintain the local habitat for the endangered bay checkerspoon butterfly.

Their environmentally-sensitive plans won the support of the Sierra Club, the American Lung Association and the NAACP. But city officials voted unanimously -- 11-0 -- to reject the plan. In an editorial, the local paper called this move "Dumb and Dumber."

Meanwhile, further south, plans to build a 550-megawatt gas-fired generator in a Los Angeles suburb were scrapped after residents voted 2:1 against the project. The local mayor added a much-needed dose of reason and maturity to the debate-by launching a hunger strike in opposition to the plant.

In California, workers are being laid off, companies are leaving the state, farmers and small businesses are losing millions, consumers are threatened with rolling blackouts, but local officials reject power plants with little regard for the consequences. Is it really any mystery why there hasn't been a single new power plant built in California in the last decade?

**Myth Number 3:** The Bush energy plan is focused almost exclusively on opening the Arctic National Wildlife Refuge (ANWR) to exploration-a move that would buy us only about 6 months worth of American consumption while destroying a pristine natural wilderness, not to mention disrupting the breeding ground of the Porcupine Caribou.

Let's separate fact from fiction when it comes to ANWR.

First, according to estimates by the U. S. Geological Survey, ANWR holds between 5.7 to 16 billion barrels of recoverable reserves-with a mean estimate of 10.4 billion barrels. And that assumes the use of drilling technology now nearly a decade old. This represents more than 300 times the amount of the



oil President Clinton released from the Strategic Petroleum Reserve last fall. And based on December 2000 figures, it would free us from about 54 years of oil imports from Saddam Hussein and Iraq.

Second, exploration would impact only about 2,000 acres out of more than 19 million. To put that in perspective, the massive Arctic National Wildlife Refuge is about the same size as the entire State of South Carolina; the two thousand acres that would be affected is less than half the size of Dulles airport.

And as for the caribou, the herd in the Prudhoe Bay area grew more than 9-fold over the past 20 years to an estimated 28,000 in 2000-seemingly irrefutable evidence that caribou mating and oil exploration can peacefully coexist.

The decision to open a small portion of ANWR should be made on the merits. But it should not be made on the mistaken assumption that opening ANWR will allow us to produce our way to full energy independence.

America first became a net importer of energy in the 1950s - and our economy will continue to depend, in part, on imported oil. However, closing off virtually every available new source of domestic supply, enhances the leverage and power of an oil cartel that cannot be relied on to put America's interests first. While the resources of ANWR won't make us energy independent, they will help increase America's energy security by ensuring a more diverse supply of oil.

**Myth Number 4:** Government subsidies and tax breaks are the best way to encourage new exploration and production of energy.

This administration will continue to support funding for energy research and development initiatives. But capital is best allocated to its highest uses through the workings of the free market, not manipulations of the tax code. Government regulatory policy should not be aimed at picking winners and losers in any market, including energy. Neither should tax policy.

**Myth Number 5:** We can forego traditional sources and instead meet rising energy demand by harnessing wind, geothermal, solar and other forms of renewable power.

Excluding hydro-power, renewable sources currently generate about 2 percent of America's electricity. Billions have been invested in developing renewable energy-and will continue to be invested under the Bush Administration. But renewables have yet to overcome the economic advantages of conventional energy sources.

Even with promising advances in research and development, renewables will only provide, according to Energy Information Administration estimates, about 6 percent of our total electricity consumption by 2020. Even if renewables exceed our most optimistic expectations, they would still supply only a fraction of our needs over the next 20 years.

**Myth Number 6:** Price controls are the answer to today's energy crisis.

Memories are short, aren't they. So let me remind everyone. America imposed price controls on oil and gas in the 1970s. They were an utter failure. They led to shortages and rationing and the idea that America was gripped by malaise.

Let me be clear: The Bush Administration does not support price controls. Price controls on electricity will lead to more blackouts. Price controls on gasoline will lead to gas lines. Price controls will deepen America's energy crisis, because they won't reduce demand, but they will cripple incentives for desperately needed new investments in energy supply.

## **Charting a New Policy Course**

The challenges are formidable . . . the warning signs are obvious . . . but I am optimistic because I know this administration's commitment is equal to the task.

Our national energy policy will be comprehensive. It will reach across every department that touches the energy marketplace-from the Interior Department and the EPA to the Transportation Department and the DOE.

Our national energy policy will be hemispheric. It will be based on the understanding that our policy cannot stand in isolation from our neighbors throughout the Americas.

Our national energy policy will stress the need to diversify America's energy supply. It will be founded on the understanding that diversity of supply means security of supply . . . and that a broad mix of supply options-from coal to windmills, nuclear to natural gas-will help protect consumers against price spikes and supply disruptions.

And our national energy policy will be balanced. It will leapfrog the myths that stifle change-rejecting the notion that there is no middle ground between environmental protection, regardless of the cost and energy exploration, regardless of the impact.

Soon we will deliver our recommendations to President Bush. Later, we will introduce legislation aimed at winning bipartisan support for a national energy policy that matches the magnitude of the challenge. I am hopeful that men and women of good will-from both ends of the political spectrum . . . from environmental organizations to industry groups-will then come together and transcend the stale debate that has characterized energy policy in recent years.

About 150 years ago, America faced a vastly different energy crisis.

Supplies of whale oil were becoming more and more scarce. Few could afford to pay for the luxury of this or other costly methods of illumination. Sure, crude oil was available. In those days it was soaked up with rags, wrung out into small vials, and then sold as a treatment for toothaches . . . until an entrepreneur lined up an investor and a chemist and launched an energy revolution that would light the world.

In America, resources become scarce only when our imagination languishes. By engaging that imagination, I am confident we can meet the challenges of today. If complacency yields to action. If we resolve to strike a rational balance between our energy needs and our environmental concerns. And if a national energy policy becomes an urgent priority.

Thank you.

# Report by Energy Secretary Spencer Abraham

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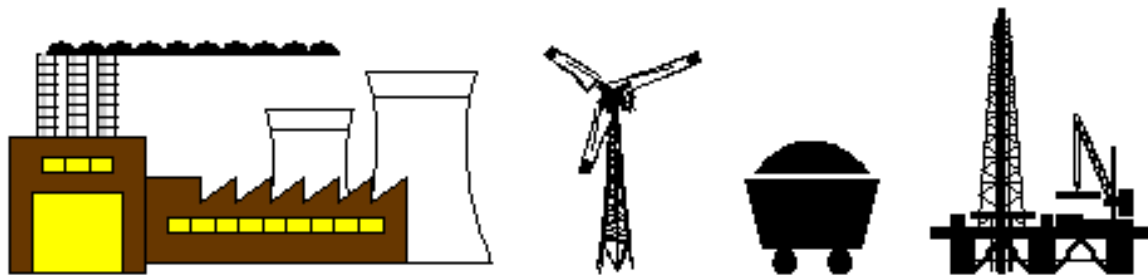
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49. [MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum \(3\)](#)
50. [MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum \(4\)](#)
51. [MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum \(5\)](#)
52. [Negentropic Engineering](#)
53. [Rigorous "out-of-the-box" work](#)
54. [Rigorous "out-of-the-box" work \(2\): \(Bedini "negative resistor" in a battery\)\\*](#)
55. [Initiating a Battery to COP>1.0](#)
56. [Secretary alone cannot solve it](#)
57. [What is desperately needed](#)
58. [Why it can be done in time](#)
59. [Cautions!](#)
60. [The scientists have failed us](#)
61. [136-yr-old EM Model1](#)
62. [All EM from Time Domain1](#)
63. [Astonishing but true](#)
64. [With plentiful, cheap, clean electrical energy:](#)
65. [Recommendations to DOE](#)
66. [In conclusion:](#)



# Report by Energy Secretary Spencer Abraham

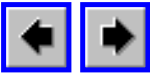
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National Energy Summit,  
U.S. Chamber of Commerce  
Mar. 19, 2001

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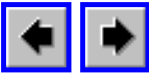


# National energy policy for 8 years .....

- The national policy imposed the following:
  - Taxed energy demand
  - Limited the energy supplies
  - Ignored expanding energy needs
- Summary of the past policy on energy:
  - You cannot find it
  - You cannot transport it
  - If you get it, we don't want you to use it
- *Good News: Crisis can be solved*
- *Bad News: Not temporary; will not fix itself*

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# Energy supply challenges



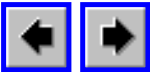
- Demand for energy rising across the board, particularly for natural gas and electricity
- Supplies limited by regulatory structure
  - Failed to keep pace with technology advances
  - Uncertain political environment discourages investment in desperately needed facilities
- Energy infrastructure is woefully antiquated and inadequate

Note: The energy infrastructure is that network of generators, transmission lines, refineries, and pipelines that convert raw resources into usable energy or fuel

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# Oil: Rising consumption and accelerating dependence



- In U.S., will increase 33 percent in 20 years
- U.S. production continues to drop
  - Produce 39% less now than in 1970
  - At present reduction rate, production will decrease to 5.1 million barrels per day by 2020, down from 9.4 million barrels per day in 1970.
- Imports have steadily risen
  - From 36% in 1973 to 54% today
  - Will soon rise to 64% unless checked
  - Empowers foreign suppliers such as OPEC
- Assuring affordable, reliable, adequate supply of crude oil is a critical national challenge

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# Oil: Rising consumption and accelerating dependence



- We have been decreasing the infrastructure
  - Since 1980, U.S. refineries reduced by 50%
  - No new refinery built in over 25 years
  - New regulatory interpretations limit expansion of capacity of existing refineries
  - Regulations require producing more than 15 different types of gasoline
  - Refining industry strained to capacity
- E.g., Clinton symbolically released 30 million barrels of oil from the Strategic Petroleum Reserve
- *The oil had to be shipped overseas to be refined!*

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# Natural Gas: Rapidly rising demand, supply constraints



- By 2020, U.S. will consume 62% more natural gas than today
- More than 9 out of 10 of announced new electric power plants will be fired by natural gas
- 40% of potential gas resources are on federal lands either closed or severely restricted
- Last lease in Gulf of Mexico more that 10 years ago
- New discoveries falling
- Dangerous to assume relying on natural gas, severely restricting exploration, keeping low prices

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# Natural Gas: Rapidly rising demand, supply constraints



- Given enough natural gas, 38,000 more miles of transmission pipelines and 255,000 miles of distribution lines will be needed
- This alone will cost \$120-150 billion
- E.g., Alaska's Prudhoe Bay produces 8 billion ft<sup>3</sup> per day
  - About 13% of America's daily consumption
  - Never reaches the market, pumped back into ground
  - Waiting on building a pipeline to connect Alaska fields to US/Canada distribution system

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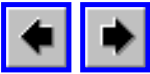
# Electricity: Needs, problems



- Over 20 years, conservative estimate is that demand will increase 45%
  - Will require construction of 1,300 new power plants, about 65 every year (about one every 6 days)
  - Last time we added so many power plants was 1985
- Some experts calculate demand will increase faster
  - May require nearly 1,900 new power plants
  - That is 90 per year (about one every four days)
- Either way, will place great pressure on already strained and aging power grid

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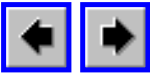


# The aging power grid

- Network of transmission lines, substations, and transformers
- Built when utilities were tightly regulated, supplied service to assigned regions
- Interconnections between suppliers were strictly emergency backup measure for rare usage
- Not designed at all for long-haul swapping of power in a competitive market
- Transmission bottlenecks contributed to California blackouts this winter and price spikes in New York City last summer

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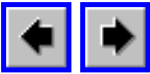
# Coal fired electrical power



- Coal powers half our electricity generators.
- Enough coal for 250 years.
- Coal emissions slated for broad reductions
- Administration will support new technology, but will not threaten electricity supplies and let it significantly raise electricity prices
- President Bush therefore decided not to impose new mandates on CO<sub>2</sub> emissions
- If nation is to have reliable electricity over next 20 years, coal must play a major role

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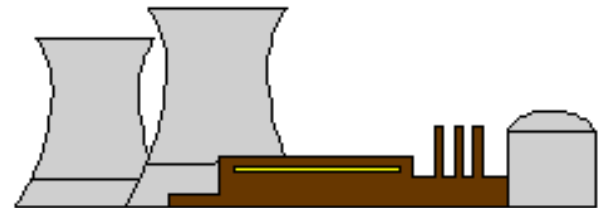
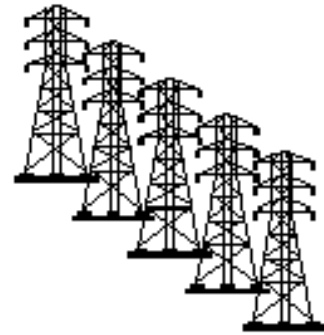
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# Nuclear power plants



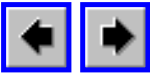
- No new nuclear power plant permit granted since 1979
- 103 existing nuclear power plants
- Many not expected to even file for license renewal as licenses expire over the next 15 years



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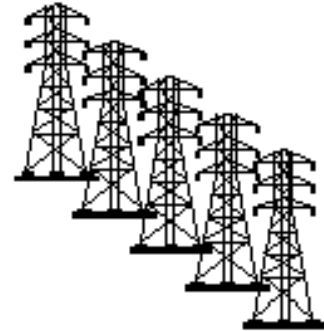
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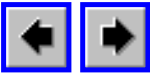
# Hydroelectric power generation

- Expected to fall sharply
- Re-licensing can take a decade and cost millions
- Some activists and political leaders want to breach one or more of the four federal dams on the Snake River to help young salmon on their trek to the sea



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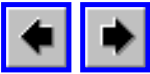
# Dangers of complacency



- Last three recessions tied to rising energy prices
- Latest crisis already causing negative effects
- Soaring fuel costs: extra \$115 billion between 1999 and 2000; 1% off Gross Domestic Product
- In two weeks in January 2001:
  - Californians lost \$2.3 billion in wages, sales, etc.
  - Layoffs hitting in West as manufacturers shift to states with more reliable energy sources
  - Intel will not build \$2 billion plants in California to expand there.
  - Farmers' incomes to drop 20% in next two years

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## Dangers of complacency (2)

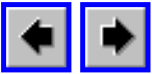


- Some homeowner gas bills in Washington D.C. more than tripled this year
- Heating bills of some residents exceeded their food bills during the winter
- California power outages shut down traffic lights, closed businesses, darkened schools
- Police patrols were used to insure compliance
- Electricity shortages predicted for New York City and Long Island this summer
- Strained refinery capacity in the Midwest
- Low capacity threatens electricity reliability in Midwest, Southeast, and Northern Plain states



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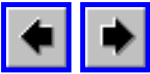


## Need for national energy policy .....

- Rising demand, tightening supplies, aging power infrastructure, decade of neglect
- President created Energy Task Force, headed by VP Cheney, to determine strategy
  - Environmental responsible exploration and recovery
  - Conservation and energy efficiency
  - Encourage investment in new technology for renewable energy sources
- Debate is still deeply polarized

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# Extremes of the energy positions .....

- Some activists:
  - Zero tolerance to exploration
  - New, undiscovered sources will somehow provide for us
- Some advocates:
  - Limitless faith in special tax breaks for a favored activity or subsidies for a preferred industry



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# Six prominent myths, none of which is true

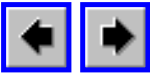


1. It is impossible to balance energy exploration and environmental protection
2. There is a massive energy industry conspiracy, limiting supply to drive up prices
3. The Bush energy plan is focused almost exclusively on opening the Arctic National Wildlife Refuge (ANWR) to exploration
4. Government subsidies and tax breaks are the best way to encourage new exploration and energy production
5. Can forego traditional sources and meet demand by wind, geothermal, solar, and other forms of renewable power
6. Price controls are the answer to the energy crisis



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# Can we balance exploration and environmental protection?

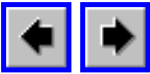
.....

- Today, satellites and computers are tools of choice for exploration.
- Acoustic and electrical vibrations off the earth's depths provides maps of resource fields
- With advanced equipment, drill vertically, horizontally, or around corners up to 6 miles
- Fewer rigs, fewer roads, fewer pipelines
- 65 acre drilling in 1970s needs only 10 now
- Success rates have increased 50 percent



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# Is there a price gouge conspiracy? .....

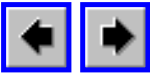
- Calls to investigate gasoline price spikes
- Allegations that power generators in the West have been withholding electricity
- Investigation and action is taken where merited
  - FERC ordered power companies to rebate \$124 million to California utilities
  - FTC cleared gasoline suppliers relating to last summer's price increases
- There is no hidden energy pool that can be turned on and off like a faucet
- Must solve power crises by resolving conflict between demand and supply



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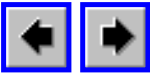


## Is there a price gouge conspiracy? (2)

- Early this year (2001) one company proposed to build a \$400 million power plant in California
  - Additional electricity for 600,000 homes
  - Plant 800 trees to beautify the area
  - Cloak facility in a brick facade to resemble a high-rent office complex
  - Help maintain habitat for an endangered butterfly
- Project supported by Sierra Club, American Lung Association and NAACP.
  - City officials unanimously (11 to 0) rejected it
  - Local paper called this move "Dumb and Dumber".

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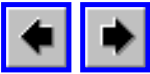


## Is there a price gouge conspiracy? (3)

- Plans to build a 550 megawatt gas-fired generator in a Los Angeles suburb were scrapped
- Residents voted 2:1 against the project
- Local mayor launched a hunger strike in opposition to it.
- In California:
  - Workers are being laid off
  - Companies are leaving the state
  - Consumers threatened with rolling blackouts
  - Local officials reject power plants with little regard
- Is it really any mystery why there hasn't been a single new power plant built in California in the last decade?

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## Arctic National Wildlife Refuge Exploration .....

- **Myth:** Would buy only about 6 months worth of consumption while destroying pristine wilderness and disrupting the caribou
- **Fact:** The ANWR holds from 5.7 to 16 billion barrels of recoverable reserves (mean is 10.4)
  - More than 300 times the oil Clinton released
  - Frees us from equivalent of 54 years of imports from Saddam Hussein and Iraq
  - Exploration involves only some 2,000 of more than 19 million acres -- like half the Dulles airport compared to the entire state of South Carolina

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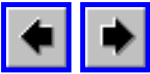
# Arctic National Wildlife Refuge Exploration (2)



- The caribou herd in the Prudhoe Bay area grew more than 9-fold over the last 20 years (to 28,000 in 2000)
- Proves that caribou mating and oil exploration can peacefully co-exist
- Exploration should be considered on merits
- Opening ANWR will help, but does not allow full energy dependence

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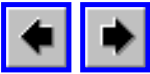
## Our increasing oil imports

- U.S. became a net importer of oil in 1950s
- Closing off all new domestic sources enhances leverage and power of oil cartels
- These cannot be relied on to put American interests first
- Development of domestic resources such as ANWR will help increase energy security by ensuring a more diverse supply of oil



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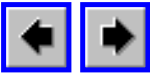


## Government subsidies and tax breaks .....

- Administration will continue to support funding for energy research and development initiatives.
- Capital is best allocated through the workings of the free markets, not manipulating the tax code
- Government regulatory policy should not aim at picking winners and losers
- Neither should tax policy

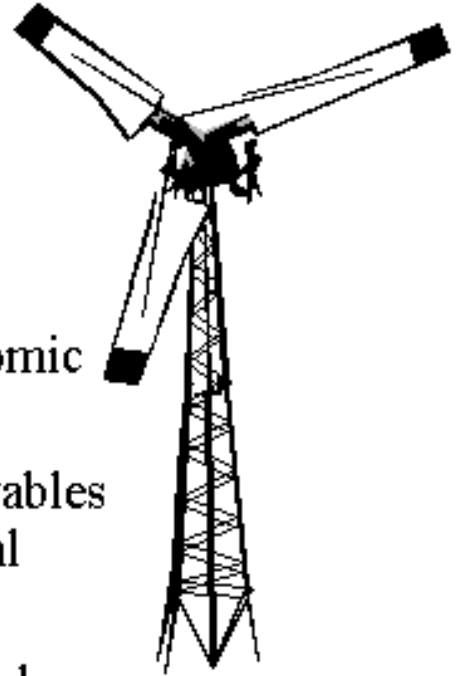
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# Renewable energy sources

- Excluding hydro-power, renewable sources generate about 2% of America's electricity
- Bush administration will continue to invest in renewable energy sources
- Renewables have not overcome economic advantages of conventional sources
- Even with promising advances, renewables will provide only about 6% of our total electricity by 2020.
- Even with most optimistic breakthroughs, they will supply only a fraction of our needs over the next 20 years.



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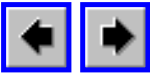
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[illegible]

- America imposed price controls on oil and gas in the 1970s; they were an utter failure
- Led to shortages, rationing, and idea that America was gripped by malaise
- Administration does not support price controls
  - Lead to more blackouts and gas lines
  - Will not reduce demand, but cripple incentives for new investments in energy supply
  - Will deepen America's energy crisis

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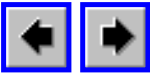


# Charting a new national policy .....

- Comprehensive. Across every department.
- Hemispheric. Includes the Americas.
- Diversify the energy supply for security, with a broad mix of options.
- Balanced. Combines environmental protection and energy exploration.
- Recommendations to be delivered to President Bush soon.
- Legislation will be introduced and bipartisan support.
- Hope that men and women of good will come together and transcend the present stale debate.

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# Commentary

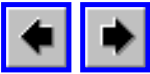


by Tom Bearden, Ph.D.  
12 April 2001



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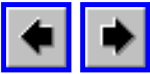
## Commentary:

- A reasoned and professional assessment of the present energy crisis situation by Secretary Abraham
- Demonstrates administration and DOE are energetically attempting to get the crisis under control with conventional methods
- Scientific advisers have no "out-of-the-box" energy knowledge; policy stays essentially "in-the-box"
  - Shortage of oil, get more oil
  - Shortage of natural gas, get more natural gas
  - Shortage of electrical power plants, build more
  - Need 90 per year; build them
  - Short distribution grid, build additional
  - Shortage pipelines, build some more
- Cannot "get more" in time to prevent economic disaster
- Cannot avoid overrunning first quarter 2004 "point of no return"



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## Caution: It is stressed that

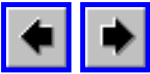


- Given only the conventional Lorentz-regauged electrical design model,  $COP > 1.0$  EM systems are impossible. That type of EM only designs  $COP < 1.0$  systems!
- Given advice from scientific "experts" who know only  $COP < 1.0$  design, U(1) electrodynamics, and Lorentz regauged power system theory, the Administration is doing the best that can be done, all factors considered.
- The DoE and the Administration must use whatever they have available to them, to try to solve the crisis.
- Hence DoE and the Administration is not at fault. On the contrary, they are trying very hard to solve this escalating energy crisis, using the tools the scientists offer them.
- It is the U.S. scientific community that is squarely to blame for this sad state of affairs, and for the coming economic collapse.

COP = Coefficient of Performance

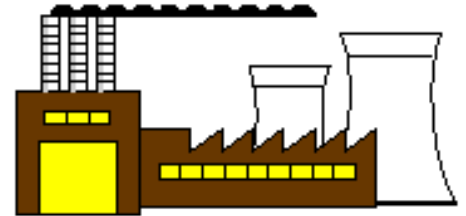
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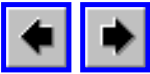
## An example of the time problem.....

- TVA and Texaco are discussing building a coal gasification 1,500 megawatt power plant.
  - Near Scottsboro, Alabama
  - Construction could begin in 2002.
  - In 3-6 years, begin producing electricity.
  - If 5 years, it will come on line in 2007.
- 90 plants are required per year, beginning now.
- 2007 is about the time that world economies are crumbling, conflicts are raging, and all the arsenals weapons of mass destruction will be unleashed.
- 2007 is about the time civilization will be destroyed, if we continue on the present course.
- With only present solution, can get perhaps 400 to 450 plants ready to come on line, about the time they are destroyed

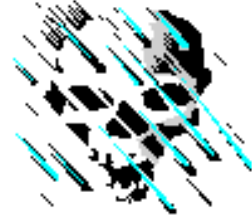


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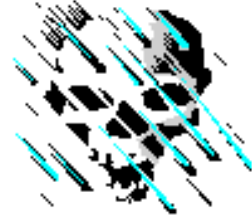
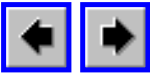
# The pending disaster



- The world energy crisis will escalate steadily, forcing collapse of world economy circa 2008.
- As nations' economies crumble, conflicts soar and one or more nations will exchange nukes and other *weapons of mass destruction* (WMD). Security partners forced to enter the melee.
- This evokes the long-dreaded WMD "spasm" response.
  - Only way for a nation to survive is to destroy its perceived foes before they destroy it.
  - Everybody fires everything, as fast as they can, unleashing all the arsenals of WMD, desperate attempt to survive.
  - Civilization and much of the biosphere is destroyed. Unleashing of smallpox alone will kill 2 billion.
- The time for this Armageddon is circa 2007.

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## The bottom line:

- Self-powering and  $COP > 1.0$  electrical power systems must be rolling off the assembly lines en masse by first quarter 2004. That is the "point of no return".
- Otherwise, the point of no return will be overrun and no solution is possible, by any means, by anyone or by everyone.
- If that deadline is missed, the crisis curves cannot be "damped" in time to prevent world economic collapse.
- It is still doable, but only with a massive national effort of the highest priority. No one recognizes that as yet.
- Meanwhile, the scientific community is doing business as usual. You will have to just push most of it aside.
- We are "fiddling while Rome prepares to explode".

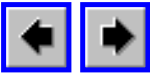
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[illegible]

- Exxon Mobil Corp. soared to the top of the Fortune 500.
- Oil, gas, and power companies climbed.
- Increased income due to
  - Falling supplies so price increases
  - Utility deregulation. CA stupidly capped end prices, and freed middle prices.  
Dunce cap award for that one!
  - Soaring natural gas prices.
  - OPEC maneuvering to keep oil prices high
- Pacific Gas & Electric declared bankruptcy; another CA power company on the ropes.



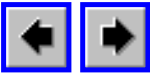


# Lowered energy requirements for appliances

- Approved in last days of Clinton administration
- Washing machines must use 35% less energy, beginning in 2007
- Water heaters must use 5%-9% less energy, beginning in 2004
- Adds about \$240 to price of washing machine
- Lower energy costs over time will offset initial increased cost
- Approved by Bush administration in April 2001 after review

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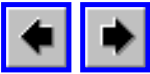


# Easing air conditioner and heat pump standards

- Bush administration eased Clinton's new efficiency standards
  - Still require air conditioners and heat pumps to use 20% less energy than most current models, beginning in 2006
  - Clinton standard was 30% less
- All central home air conditioning units must meet minimum seasonal efficiency ratio (SEER) of 12, compared to present 10
- Replaces Clinton SEER standard of 12
- In California, easing these standards requires two more power plants

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# Navarro's Estimate\*



Peter Navarro, economist at UC  
Irvine,

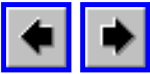
in conjunction with Utility Consumers's Action Network

\*Jennifer Coleman, "Power costs could be triple last  
year's for Californians," AP release, 22 Apr. 2001



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# Factors driving comparisons

- Last summer, soaring costs drove three utilities to brink of financial ruin
- This summer costs may rise by as much as three-fold
- Factors at play:
  - Drought-induced reduction of hydroelectric power supplies in Pacific Northwest
  - Predicted hotter-than-average summer
  - Competition from other states
- State buys about 1/3 of its power from spot market
- Spot market likely to see substantial increases

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## Prices likely per kilowatt-hour

- Last summer, peak average high price was 86 cents per KWHR
- This summer expected to hit \$1 to \$2 per KWHR
- Consumer rates capped at about 10 cents per KWHR
- The growing gap will have to be filled by state funds, which themselves are dwindling
- Eventually the California taxpayers have to pay the difference, which is from 10 to 20 times what they are paying now for capped power

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## Covering debt already incurred



- Since January, California has authorized \$5.7 billion to buy power for customers of Pacific Gas and Electric Co. and Southern California Edison
- The two utilities' credit was cut off due to
  - Soaring wholesale costs
  - Cap on consumer rates
  - Went nearly \$14 Billion in debt
- San Diego Gas and Electric Co. incurred debts but is in better shape
- State will be repaid by \$10 Billion in bonds
  - Expected to be issued in May
  - Expected to last till September but will not
  - PG&E and Edison Customers will pay off the bonds

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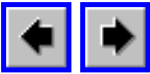
# Deteriorating situation, rising prices



- Prices rising
  - Will rise even more as demand increases
  - Demand will rise by about 50 percent during the summer
- California's own generation resources cannot meet projected peak demands and reserve requirements
  - May fall by 3,500 megawatts short (peaks)
  - Enough power for 2.6 million households
- Power grid manager must depend on imports
  - Northwest drought makes extra power scarce to find
  - Northwest utilities themselves may have to import, not supply extra

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# Other Factors



Credit, payback, scarcities



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<http://www.cheniere.org/briefings/energysec/energysec-v4-44.htm>24.11.2003 18:48:17



# Associated Press:

## Gasoline supplies are critical



- Supplies tightest for mid-April since U.S. government record-keeping began in 1963
- There is a shortage of reformulated gasoline that produces less smog and is required during summer
  - MTBE additive made from methanol, a derivative of natural gas
  - Natural gas prices quadrupled Dec-Jan; MTBE reduced by 1/3
  - California uses more MTBE-treated gasoline than any other state
  - Gas-guzzling SUV sales boomed in 1999 and 2000
- Any kind of refinery snag will be amplified
- Last winter, major refiners had to focus on filling heating oil shortage instead of replenishing gasoline supplies for summer
- Now many forced out of service to take care of maintenance that was put off to deal with the heating oil crisis
- Environmental restrictions make it difficult to build refineries; none constructed in the U.S. for more than 20 years

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## A peculiar problem

- E.g., Magnetic Energy Ltd. has a working laboratory experiment  $COP > 1.0$  device (a motionless electromagnetic generator - MEG).
- Solved basic EM system  $COP > 1.0$  theory.
- Two years more R&D necessary to finish, do production engineering and scale up for production.
- Immediate capital needed: \$20 million.
- Negotiations with large capital firms:
  - Most have substantial capital committed to normal power community, long term.
  - MEL success thus costs them dearly in unrecovered funds.
  - They shoot themselves in the foot if they fund the MEG, since this is a "very disruptive" technology.

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# MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum (1)

- The Aharonov-Bohm effect (ABE) is in over 2,000 published physics papers in the hard literature.
- Hundreds of experiments prove it. Physicists themselves would not believe it for 25 years after it was advanced and proven. Now it is universally accepted.
- Free evocation of ABE never appeared for use in power systems, without paying energy to evoke it, until we used ABE in the MEG and *freely* evoked it.
- If the magnetic field  $\mathbf{B}$  of a source is locally confined in a closed path (as in a toroid), the outside local spacetime (ST) where the  $\mathbf{B}$ -field was withdrawn is still curved. Curved ST is energetic. The 3-space energy has been transformed into curl-free magnetic vector potential  $\mathbf{A}$ . But one pays for that  $\mathbf{A}$  around a toroid, since one has to "feed" the toroid.

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## MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum (2)

- We uncovered a transformer core material that will *freely* do that B-localization of the B-flux of a permanent magnet, extracting all the B-flux into a closed transformer-like core path.
- The uncurled A-potential forms outside the core path as a freely flowing river of energy.
- We pay nothing at all to get the A-energy flow going, or to sustain it. That's for free.
- The vacuum energy exchange and locally curved ST sustain that energy flow indefinitely, due to the permanent magnet dipole's broken 3-symmetry.

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## MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum (3)

- We then hang "collecting antenna circuits" in that free river of energy flow in A-space outside the core.
- We pulse-perturb the river *a little*, with very sharp-edged pulses of low energy. Huge E-fields (i.e.,  $dA/dt$ ) are formed and strike the antenna circuits.
- From the large AC E-fields, we can intercept and collect large AC energy. The energy is dissipated in loads in the external separate collecting circuits, with no back emf into the primary circuit.
- Only small average *input* energy is required. We pay only to *switch* or *gate* the large energy flow.

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## MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum (4)

- By analogy, imagine an old triode vacuum tube.
- Suppose we trick nature into *giving* us the cathode and electron energy flow, for free, really pouring energy out of there continuously.
- Then we only have to put in a grid to switch it, a plate to intercept and catch it, and a plate circuit to dissipate it in a load.
- In the MEG, the permanent magnet and the special core provide the cathode and free flow.
- We provide the "grid" gating, plate "catching," and "plate circuits" with loads that are powered.

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## MEG uses the Aharonov-Bohm effect to extract free energy from the vacuum (5)

- The MEG becomes a *free transmitter with multiple receivers* system, *not* a transformer but a triode.
- The transmitted energy is absolutely free, taken right from curved ST. We only have to "perturb" or shake the flow a tiny bit, in sharp little shocks without much energy. The broken 3-symmetry of the magnetic dipole, in the fierce vacuum exchange, furnishes the energy in the large **E**-fields by  $d\mathbf{A}/dt$ .
- The COP that can be achieved by the MEG is limited only by the **A**-space available outside the core for collection, and the number of surface charges in those external circuits powering the loads.

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- Can easily produce continuous giant EM energy flows from the vacuum: anywhere, anytime, for peanuts
- Once flow initiated, no further input required
- Focuses on real energy problem: intercepting the pouring energy and dissipating it in loads
- Dramatic implications:
  - Reduces hydrocarbon combustion; meet Kyoto accords
  - Obsoletes nuclear power, reduces nuclear wastes
  - Reduces biospheric pollution
  - Reduces biological effects of pollution
- One drills the vacuum for energy, much easier than drilling the ground for oil and natural gas



# Rigorous "out-of-the-box" work

- Evans, Anastasovski, Bearden et al. (15 authors), Alpha Foundation's Institute for Advanced Study:
  - "Explanation of the Motionless Electromagnetic Generator with  $O(3)$  Electrodynamics," *Found. Phys. Lett.* 14(1), Feb. 2001, p. 87-94.
  - "Explanation of the Motionless Electromagnetic Generator with the Sachs Theory of Electrodynamics", *Found. Phys. Lett.* 14(8), Aug. 2001 (in press).
  - "Energy from the Vacuum," in referee process.
  - " $O(3)$  Electrodynamics from the Irreducible Representations of the Einstein Group," in referee process.
  - "Electromagnetic Energy from Curved Spacetime," in referee process..
  - "The Effect of Vacuum Energy on the Atomic Spectra," *Found. Phys. Lett.*, 13(3), June 2000, p. 289-296.
  - "Operator Derivation of the Gauge Invariant Proca and Lehnert Equations: Elimination of the Lorentz Condition," *Found. Phys.*, 30(7), 2000, p. 1123-1130.
  - "Runaway Solutions of the Lehnert Equations: The Possibility of Extracting Energy from the Vacuum," *Optik*, 111(9) 2000, p. 407-409.
  - "Classical Electrodynamics Without the Lorentz Condition: Extracting Energy from the Vacuum," *Physica Scripta*, 61(5), May 2000, p. 513-517.

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## Rigorous "out-of-the-box" work (2): (Bedini "negative resistor" in a battery)\*

- A battery-powered circuit is not a single closed current loop; but has two largely separate current half-loops:
  - Internal ion current between plates.
  - External electron current from outside of one plate, through external circuit and load, to other plate.
- M/q ratios very different: Ion current more than 200,000 times heavier per coulomb than electron current.
- Can dephase the two currents, overpotentialize both.
- Battery can thus be hyper-recharged while external circuit simultaneously powered.
- Bedini has been building successful little prototypes for more than 20 years. Could dramatically improve electric automobiles.

\* T.E. Bearden, "Bedini's Method for Forming Negative Resistors in Batteries,"  
*Journal of New Energy*, 5(1), Summer 2000, p. 24-38.  
<http://www.cheniere.org/techpapers/Bedini.pdf>

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# Initiating a Battery to COP>1.0

- A Battery is highly nonlinear with multiple currents
  - Electron current largely bound between outside of plates and external circuit including through load
  - Ion current confined between plates, through separators
  - Mass-to-charge ratios of the two currents are vastly different
- Can dephase currents by  $180^\circ$ 
  - ion current in charging mode
  - electron current in circuit-powering mode, powering circuit
- Done by forming negative resistor
  - Sharp, higher potential at insulator interface on plate surface
  - Bidirectional overpotentialization
  - Energy extracted from active vacuum



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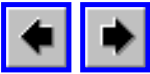


## Secretary alone cannot solve it

- Scientific community, universities, national labs, NSF, NAS, power companies doing business as usual
  - No really out-of-the-box energy research
  - Do not realize all electrical systems and power lines are powered by energy extracted from the vacuum
  - Not correcting flawed electrodynamics, uninterested
  - Not funding any vacuum energy extraction projects
- New policy cannot quickly eliminate the long delay time till new electrical power plants come on line
  - Need 60 to 90 powerplants per year; first one can be operational only after several years even with crash program
  - Skyrocketing energy, trucking and other transport costs will drive the nation into financial disaster during that delay
- Only doable solution: vacuum-energy systems

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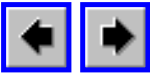


# What is desperately needed

- Separate "Manhattan Project" on energy from the vacuum systems, reporting to Secretary
  - Operate under Presidential Decision Document
  - Staffed with carefully selected scientists and engineers
  - Top priority funding
  - Round-the-clock research
- Support from selected personnel in national labs, universities, research corporations
- Start with known COP>1.0 systems; factual information can be provided

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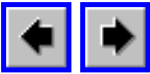
## Why it can be done in time



- Already have elements of necessary theory of Maxwellian disequilibrium  $COP > 1.0$  systems; funding will finish it rapidly
- Several legitimate  $COP > 1.0$  systems exist, can be quickly developed and scaled up
- Two years or less after start, a range of self-powering systems can be rolling off the assembly lines en masse
- A great breakthrough in close-looping principles for self-powering technology has been accomplished
  - Deeply proprietary, can be released
  - Using breakthrough, parallel program can develop self-powering of many present power systems
  - Will not be discussed without the program

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## Cautions!

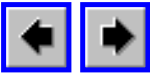


- In the so-called "free energy field", many charlatans, much disinformation, some honest mistakes, some real systems and information
- Absolutely must separate wheat from chaff
- Working laboratory proof-of-principle devices do exist; groups need funds for development
- Inventors with such systems usually do not comprehend the actual mechanism used
- U.S. is 100 years behind in applying necessary corrections to electrodynamics; but some courageous scientists have begun

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# The scientists have failed us



- Secretary Abraham, it is the U.S. scientific community which has failed us, and which is responsible for this unnecessary crisis.
- No textbook presently even correctly states what actually powers a power line. The basis has been in particle physics for a half-century.
- Before arbitrary regauging by Lorentz in the 1880s, the Maxwell-Heaviside theory does prescribe electrical power systems far from equilibrium in their fierce vacuum exchange, including systems which power themselves and their load, extracting the energy from their broken symmetry in their active vacuum energy exchange.
- Every power system already wastes a trillion times more energy than is placed on the power line; scientists and engineers do not even know it.
- Heaviside published the basis for that in the 1880s and 1890s; Poynting never even knew it. Lorentz knew it, couldn't explain the source, stated "no physical significance" and discarded it.
- This discarded "Heaviside energy" is what is generating the extra gravity in spiral galaxies, and holding their arms together. Scientists arbitrarily discarded it in the 1880s; have forgotten it today.

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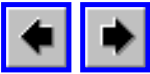
# The scientific community enforces a 137-year-old flawed EM model



- Equations still assume material ether.
- Thoroughly confuse cause and effect.
- "Fields" as defined in electrical engineering do not exist outside matter (Feynman, Wheeler)
- Arbitrarily discards vacuum energy exchange and usage.
  - Proven for nearly 50 years in particle physics
  - Dipole exchange particularly significant because dipole's negentropy extracts all EM energy -- used in the system -- from the vacuum. Every system already powered by the vacuum anyway.
- Arbitrarily discards about 10 trillion times as much EM energy present around a circuit as the circuit intercepts.
- Scientific community pummels most scientists who try to change model or develop systems far from equilibrium in their known violent energy exchange with the active vacuum.
- *Same flawed power system schema for more than a century.*

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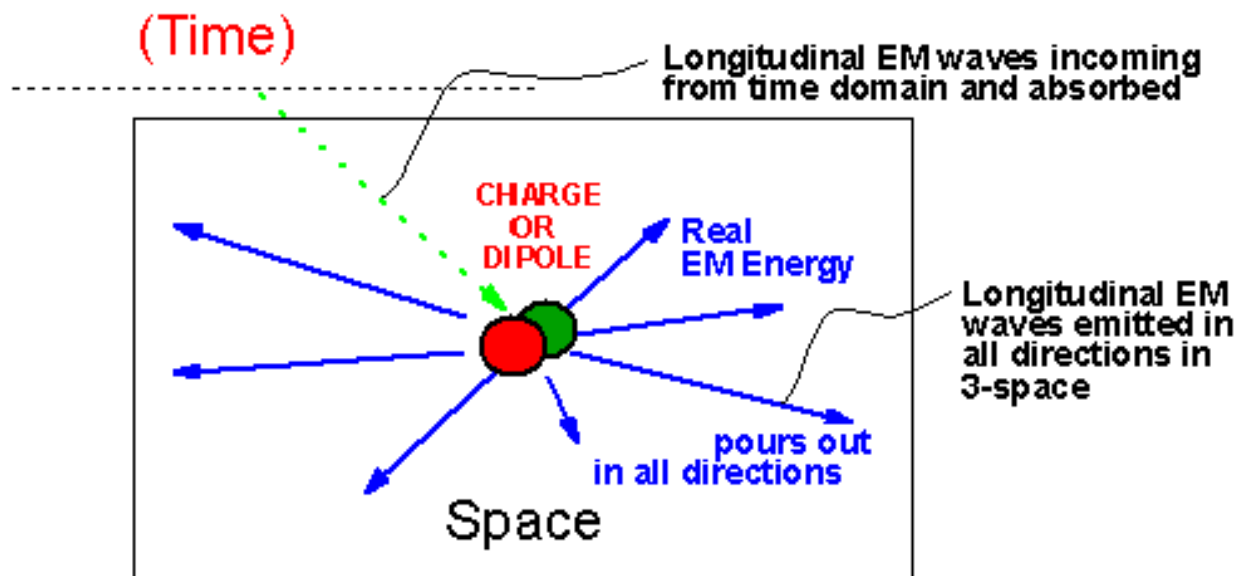


# All EM 3-space energy freely comes from the time domain\*



\* T. E. Bearden, "Giant Negentropy of the Common Dipole,"  
Journal of New Energy, 5(1), Summer 2000, p. 11-23.  
<http://www.cheniere.org/techpapers/GiantNegentropy.pdf>

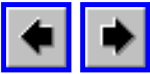
Whittaker, Math. Ann., 57, 333 (1903)  
shows this rigorously.  
Dipole's broken 3-symmetry well-known  
in particle physics



**Note:** Whittaker (and others) interpreted the phase conjugate half set of LWs after interaction with the charges of the dipole; and as an *effect* rather than the *cause*. This fundamental non sequitur has just been repeated since then. Thus they missed the solution of the source charge and source dipole.

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## Astonishing but true



- All the hydrocarbons burned, nuclear fuel rods consumed, dams and windmills built, fuel cells consumed, and batteries installed do not add a single direct watt to the power line. Never have, never will.
- All that does is continually restore the generator source dipole, which our systems are designed to continually destroy faster than they power their loads.
- The dipole extracts energy from the vacuum, and pours it out to fill all space around the power lines. The power lines intercept and use only about  $10\exp(-13)$  of it.
- Nobody tries to catch any of the rest of it. *There is no ordinary source of that energy flow, which is enormously greater than the energy put into the shaft of the generator.*

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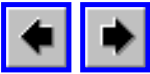
# With plentiful, cheap, clean electrical energy:



- Even poorest nations get onto the fast track
  - Rapid development of infrastructure
  - Concentrate on clean water, medical treatment, education, plentiful food
  - Rise of industries and creation of jobs
- Gradual but permanent shift in electric power
  - Accent decentralized systems
  - Dramatically reduce vulnerability of power grids
  - Practical, agile electric cars, trucks, trains
- Releases the iron grip of energy barons

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# Recommendations to DOE



- "Out-of-the-box" prototypes do exist, theory developed.
- Crash Manhattan project; Presidential Decision Directive.
- Intense program with highly selected scientists to correct EM flaws and extend EM theory to higher symmetries.
- Obtain compensated release of breakthrough close-looping process to initiate many normal power systems into self-powering systems, and rapidly develop and apply. No discussion without program and NDA.
- Protect patent rights of o/u inventors. Suspend national labs, universities, other research labs from "cluster patenting" in the area. They sign nondisclosure, non-compete, eliminate "march in" theft clauses.
- President order release of known overunity systems captured from inventors and in deep black community.

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## In conclusion:

- Secretary Abraham, the threat of weapons of mass destruction attacks and giant destruction is not overestimated. It's really worse.
- Large Russian nuclear weapons, e.g., are already in U.S. cities, with on-site Spetznaz teams to explode them. See Lunev's book.
- Professional teams with anthrax, smallpox, etc. already in place, waiting. Unleashing smallpox alone will kill 2 billion worldwide.
- In the WMD strategic attack, the delivery to the target stage is already accomplished.
- 25 nations -- many hostile to the U.S. -- now have nukes, biological warfare agents, etc.
- The earth is in fact a giant powder keg, waiting to explode at the touch of a match. Unless solved at enormous speed, the energy crisis will certainly strike that match about 2007.
- Only one thing -- energy from the vacuum -- can do it. Neither the DoE nor the U.S. scientific community are working on that.

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# Weapons Slides

[The Tom Bearden  
Website](#)



[Help support the research](#)

"Others [terrorists] are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our [counterterrorism] efforts." \* [\\_](#)

Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.

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## Slides (covers period up to 1999)

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- [The Coming Strategic Attack on the United States](#)
- [Outline](#)
- [Loss of two separate A-10 Warthogs in 1997](#)
- [Typical ABM Defenses \(Widely Deployed by mid-70s\)](#)



- [Launch Phase Anti-Missile System](#)
- [Launch Phase Anti-Bomber System](#)
- [HC-130s Engines Quit, Aircraft Crashes](#)  
Nov. 22, 1996
- [1996 Actions by this analyst](#)
- [Additional Information Exists: Not Analyzed, Not Integrated in Briefing](#)
- [Kill of Arrow DC-8, Gander AFB, Dec. 12, 1985](#)
- [Satellite Photos of Plumes in Soviet Arctic Since 1974](#)  
See "[Fer de Lance](#)" for additional information
- [Aum Shinrikyo \("Supreme Truth" Cult\), Shoko Asahara, Leader](#)  
  
[Aum Shinrikyo - Anatomy of a Dangerous Cult](#)
- [Ashkhabad Problem and Its Solution](#)
- [Strange Characteristics of Iran Quake, Sep. 1978](#)
- [Iran Earthquake, September 1978](#)
- [Situation Now \(Assessment\)](#)
- [Situation Now \(Assessment 2\)](#)
- [Aspects of Strong Local Asymmetry](#)
- [Mass Casualty Problem: Aerial Anthrax](#)

[Spray on Washington, D.C.](#)

- [Present Status of the WMD Threat to the United States](#)
- [Some Present Problems in the U.S. WMD Defense Capabilities](#)
- [Internal Terrorist Threat with Weapons of Mass Destruction: Now & Future](#)
- [Attempt to Ban Energetics Weapons Worldwide](#)
- [Brezhnev's Schedule](#)
- [Large glowing Tesla globe witnessed in Red China by hundreds](#)
- [Cold Explosion -- 9 April 1984 Near Kurils, and formation and growth of spherical shell \(globe\)](#)  
[Sequence of Events](#)
- [Cold Explosion -- 9 April 1984 Near Kurils, and formation and growth of spherical shell \(globe\)](#)  
[What They Were](#)
- [Cold Explosion -- 9 April 1984 Near Kurils \(Plus additional weapons effects\)](#)
- [Countering Insane MAD Systems: Find Loophole, Exploit It](#)
- [Next Generation Counter to Both Sane and Insane MAD systems](#)
- [Simultaneous Dudding of Nuclear Weapons Worldwide](#)

- [Simultaneous Dudding of Nuclear Weapons Worldwide](#)
- [Operation Divine Wind II](#)
- [Advanced EMBW Applications](#)
- [EM Biological Warfare \(EMBW\)](#)
- [Microwave Radiation of U.S. Embassy in Moscow](#)
- [Pentagon EMI Studies, 1989](#)
- [EM Missile Practice \(6 slides\)](#)
- [Subdivisions of Soviet Energetics Program](#)
- [Communism's Goal](#)
- [Manuilsky's Goal vs. Status Today \(Dec. 1996\)](#)
- [Professor Hellman, German Scientist Released from Work in Soviet Union](#)
- [Hemispheres and Globes of Light \(4 slides\)](#)
- [How Could Such Superweapons Ever Be Concealed?](#)
- [Soviets Easily Concealed These Superweapons for Four Decades](#)
- [Microscope-type, laser-like interferometer for inducing quick  \$\alpha\$ -decay in samples of otherwise longer-lived isotopes](#)
- [Longitudinal Wave Interferometry: Endothermic](#)

- [Longitudinal Wave Interferometry:  
Exothermic](#)
- [U.S. Air Attack on Libya, April 1986](#)
- [Lightning Wall](#)  
circa 1959-1960
- [Lisitsyn's Report: Brain Code Broken](#)
- [Large Longitudinal Wave Interferometer  
\(LWI\) Accident](#)
- [Large Longitudinal Wave Interferometer  
\(LWI\) Accident](#)
- [Use of Hidden Information Content of the  
Field Can Provide Action-At-A-Distance](#)
- [Two Types of Mutual Assured Destruction  
\(MAD\) System](#)
- [Psychoenergetics Weapons Teams Mentally  
Disable All Personnel](#)
- [Strikes Against Special Ship and Energetics  
Weapons Sites](#)
- ["Mindsnapper" Attack on Special Ships and  
Energetics Weapons Sites](#)
- [How Much Off Guard Are We?](#)  
(7 Slides)
- [Possible Targets: 1995-9 Escalation Phase](#)
- [Propagation of Weapon Effects](#)
- [Yugoslav Earthquake, Followed by Cold  
Explosion](#)  
April 15th, 1979

- [Countering an Insane QP Weapon](#)
- [Gulf War Disease: KGB QP Weapon  
Induced ST Curvature Engines for a  
Cocktail of Diseases](#)
- [Self-Targeting in Inner EM Channel Can  
Produce a Quantum Potential](#)
- [Mechanism for Producing a Quantum  
Potential](#)
- [Major Principles for Use of Quantum  
Potential Weapons](#)
- [Major Principles for Use of Quantum  
Potential Weapons \(2\)](#)
- [Instantaneous Communication by a  
Quantum Potential](#)
- [Participants in a quantum potential share a  
common multiply-connected spacetime  
\(MCST\)](#)
- [Quake in Tangshan, China](#)  
28 July, 1976
- [Exchanging Earthquakes](#)
- [Instant Communication by a Quantum  
Potential](#)
- [Westerners Do Not React to Slow Threats](#)
- [Characterizing a Given Risk or Risk Factor](#)
- [Technical Risk Management](#)
- [Aum Shinrikyo's Sarin Facility](#)

- [In Scalar Beam Interference Zone](#)
- [Physicist Schappeller Auralaz Munster, Austria](#)
- [Initial Soviet Plan for Cold War, After WWII](#)
- [Josef Stalin: Absolute Dictator](#)
- [Exploding any Resistance by Operational Scientists](#)
- [Significant Soviet Statements](#)
- [Captain Svoboda Dives Headlong to Her Death](#)
- [T-polarized Beam Projector](#)
- [Possible Tests \(1\)](#)
- [Possible Tests \(2\)](#)
- [Possible Tests \(3\)](#)
- [Possible Tests \(4\)](#)
- [Mushroom Cloud Rising From Sea](#)
- [Launches from Cape Canaveral and Vandenberg AFB Provided Practice Targets of Opportunity](#)
- [The sinking U.S.S. Thresher, with her controls jammed, implodes when she reaches crush depth](#)
- [Embodiment of an instrument array sufficient to discriminate when time-density charging has occurred, and that transduction](#)

[of time-charge decay has occurred.](#)

- [Time-Polarized EM Wave Interferometer  
Creating Space-Time Curvature Engines in a  
Distant Interference Zone](#)
- [Transmutation of Radioactive Nuclei at a  
Distance](#)
- [Transmutation of Radioactive Nuclei](#)
- [Typical Tesla Shield, Northern Route of  
Japan](#)
- [A Curious Tide in Human Affairs](#)
- [Large Scalar EM Interferometer \(LASI\)  
Accident Near Urals, 1958](#)
- [The Superpower Paradox: Asymmetric  
Cheap WMD Strategic Strike and  
Destruction](#)
- [The KGB/Yakuza-Aum War Plan](#)
- [Why Western Science is Ignorant of KGB  
Energetics](#)
- [Transmutation of Radioactive Nuclei at a  
Distance](#)
- [The Yakuza](#)
- [Yugoslav Earthquake, Followed by Cold  
Explosion](#)  
April 15, 1979

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\* Note that the Secretary did not speak the words in square blocks; these were added by the writers later,

probably to "soften the tone" of the Secretary's information release. So the Secretary confirmed that some nations of the world -- not just some ragged terrorists, as the writers tried to imply for spin control -- do possess novel electromagnetic weapons and are using them to induce earthquakes, engineer the weather and climate, and trigger volcanic eruptions.



# **THE COMING STRATEGIC ATTACK ON THE UNITED STATES**

**By an AUM/Yakuza/KGB/Communist Coalition Using Energetics SuperWeapons**

**With Technical  
Background  
and History of  
Energetics  
Weapons**



**T.E. Bearden, LTC  
U.S. Army (Retired)  
M.S. Nuclear Eng.  
Fellow Emeritus, AIAS**

**Partial support by the Association  
of Distinguished American Scientists  
is gratefully acknowledged.**

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## Outline



- **Background: Classical Electromagnetics (and Defects)**
- **Background: Energetics (Scalar Electromagnetics)**
- **Background: Soviet Energetics Weapon Development**
- **KGB/Communist Plans**
- **Countering of Soviet/KGB/Communist Plan in Mid-80s**
- **Soviet Economic Collapse and Adaptation of Plan**
- **Weapons Bleed-Out: KGB/Russian Mafia**
- **Yakuza: The Japanese Mafia**
- **Aum Shinri Kyo (Supreme Truth) Cult**
- **Coalition: Aum/Yakuza/KGB/Communists/Russian Mafia**
- **Operation Divine Wind II: Three Phases**
  - Phase I: On-Site Training Phase (Completed)
  - Phase II: Escalation Phase (In Progress)
  - Phase III: 1997 Strategic Strike on the United States
  - Support Plan A: Feints, Deception, Sabotage & Terrorism
  - Support Plan B: Test Range
  - Support Plan C: Worldwide Weather Engineering
  - Support Plan D: Strategic and Combat Intelligence
- **Special Information**
- **Recommended Actions**



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## Loss of two separate A-10 Warthogs in 1997

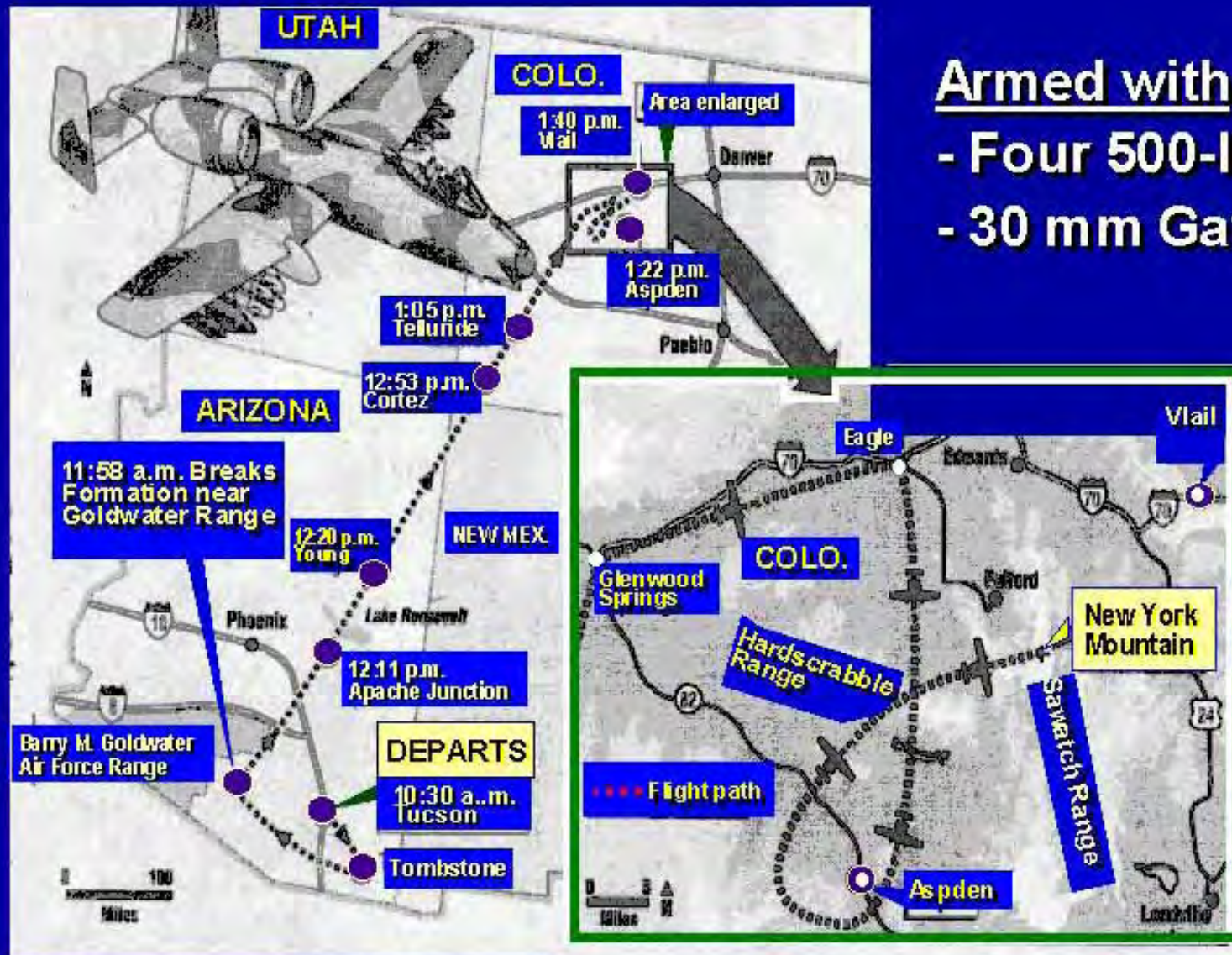
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- [A-10 Mysterious Flyaway and Crash - April 2, 1997](#)
- [Death of Second A-10 Pilot - May 27, 1997](#)
- [Captain Button's Mysterious Flyaway and Eventual Crash](#)
- [Death of Second A-10 Pilot - May 27, 1997](#)



# A-10 Mysterious Flyaway and Crash

April 2, 1997



Armed with:

- Four 500-lb bombs
- 30 mm Gatling gun

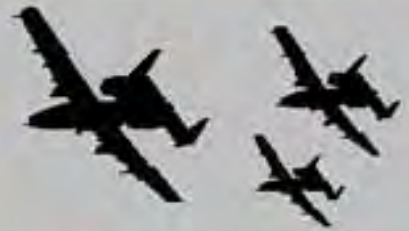


## Death of 2nd A-10 Pilot May 27, 1997



- Experienced night flyer & instructor
- Nosed sharply over and flew into ground
- Psychoenergetic kill

- Captain Amy Svobody
- Night training mission
- From Davis-Montham AFB
- From same wing as Captain Button, who flew his A-10 off course for over an hour and then crashed on April 2.
- Climbout from ordnance delivery on target
- Nosed down sharply and dived into ground



Companion A-10's



© T.E. BEARDEN 1999

***Psychoenergetic weapon induced instant hypnogogic state and reversed Svobody's sense of up and down.***

# A-10 Mysterious Flyaway and Crash

April 2, 1997

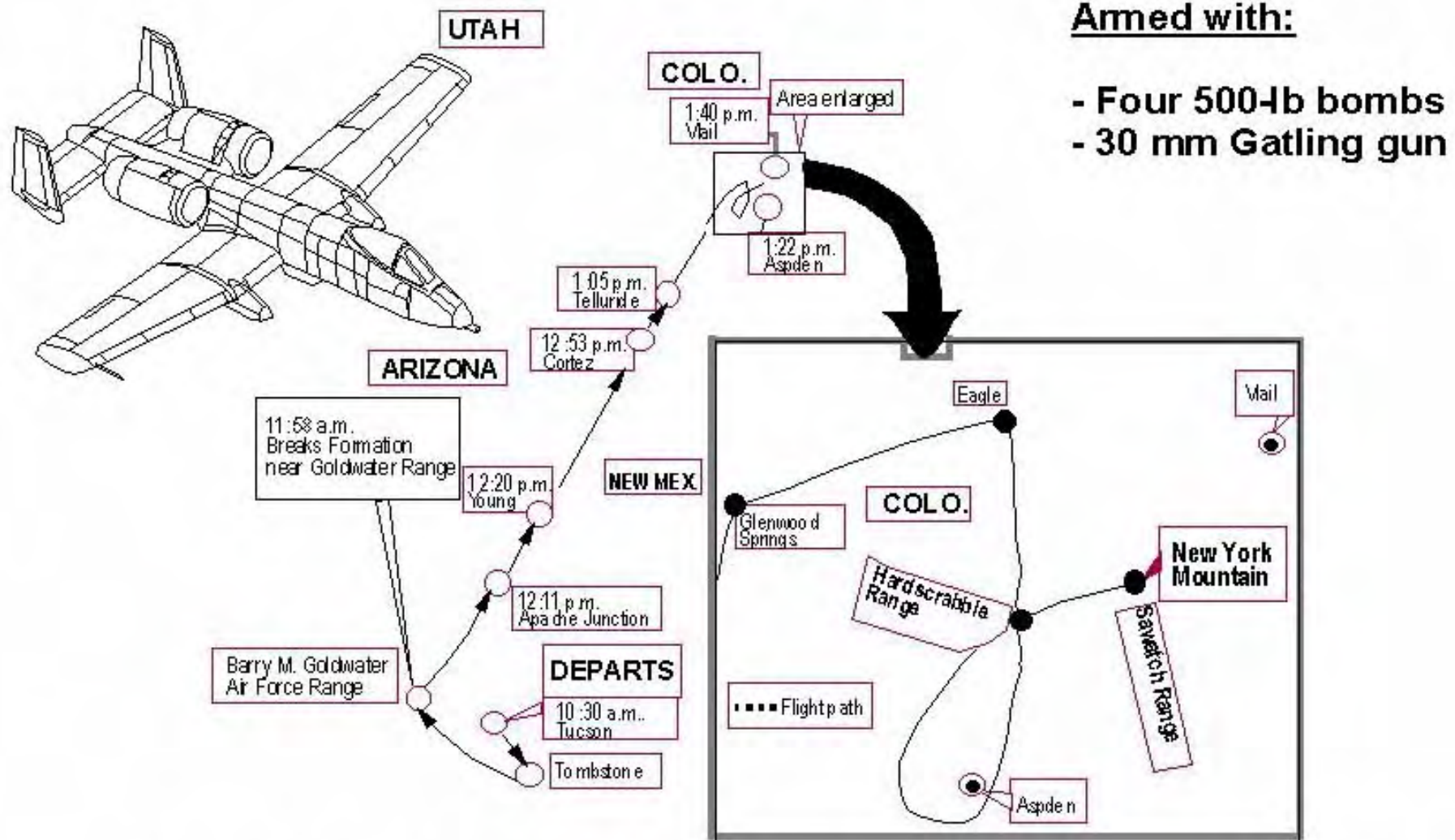


Figure 14a. Captain Button's mysterious flyaway and eventual crash.



# Death of 2nd A-10 Pilot May 27, 1997

- Purpose: Stimulate U.S. in same area again
- Determine if U.S. aware of psychoenergetics
- U.S. showed it is completely unaware

- Captain Amy Svoboda
- Night training mission
- From Davis-Montham AFB
- From same wing as Captain Button, who flew his A-10 off course for over an hour and then crashed on April 2.
- Almost certainly a second psychoenergetics strike

- Experienced night flyer & instructor
- Nosed over and flew into ground
- Probable kill using psychoenergetics

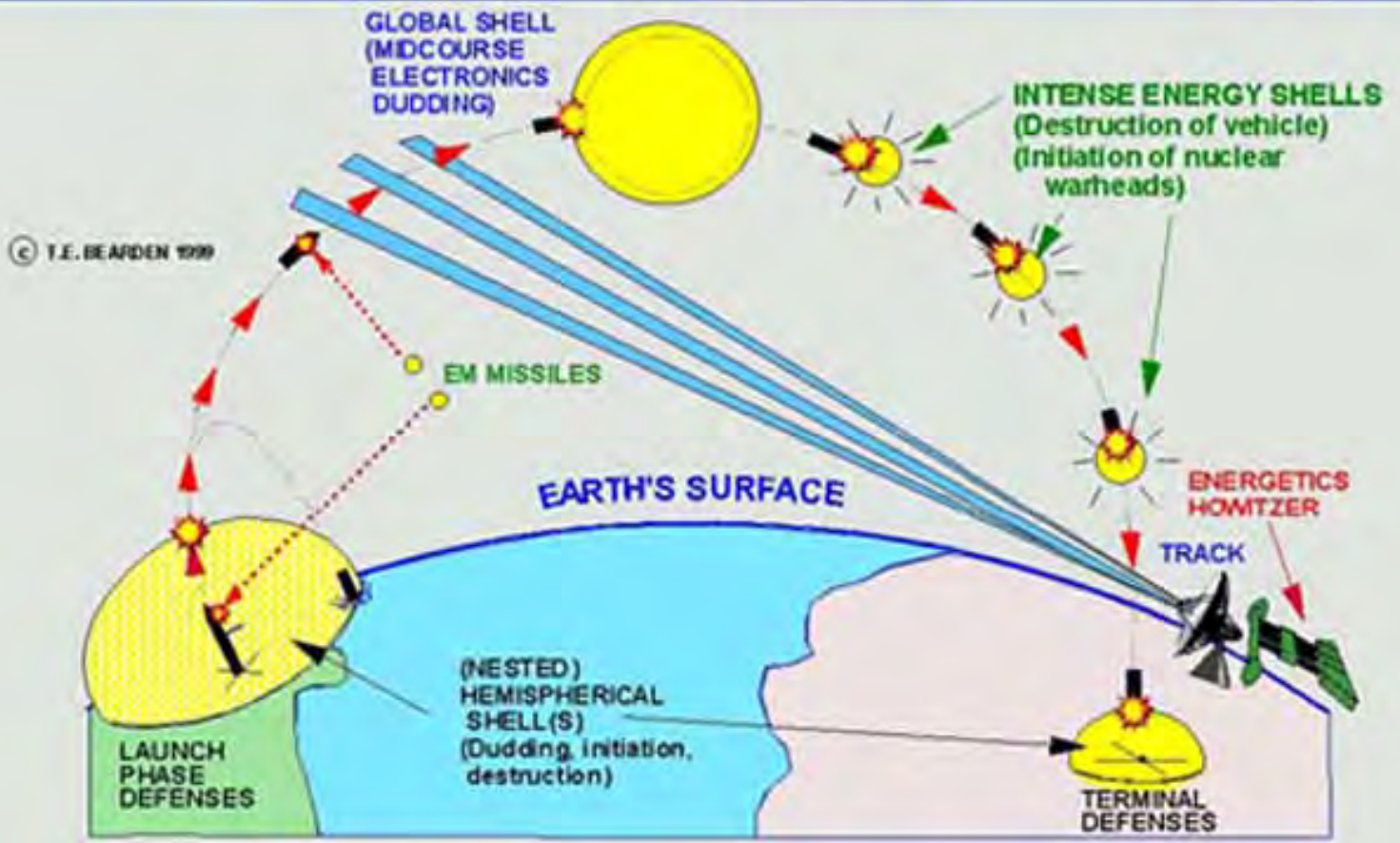
*Psychoenergetic strike induced an instant hypnogogic state, shifted pilot's sense of up and down. Svoboda corrected and "climbed out" after target attack, and flew into ground, dream-perceiving down was up.*

© T.E. BEARDEN 1997



# Typical ABM Defenses

(WIDELY DEPLOYED BY MID-70's)

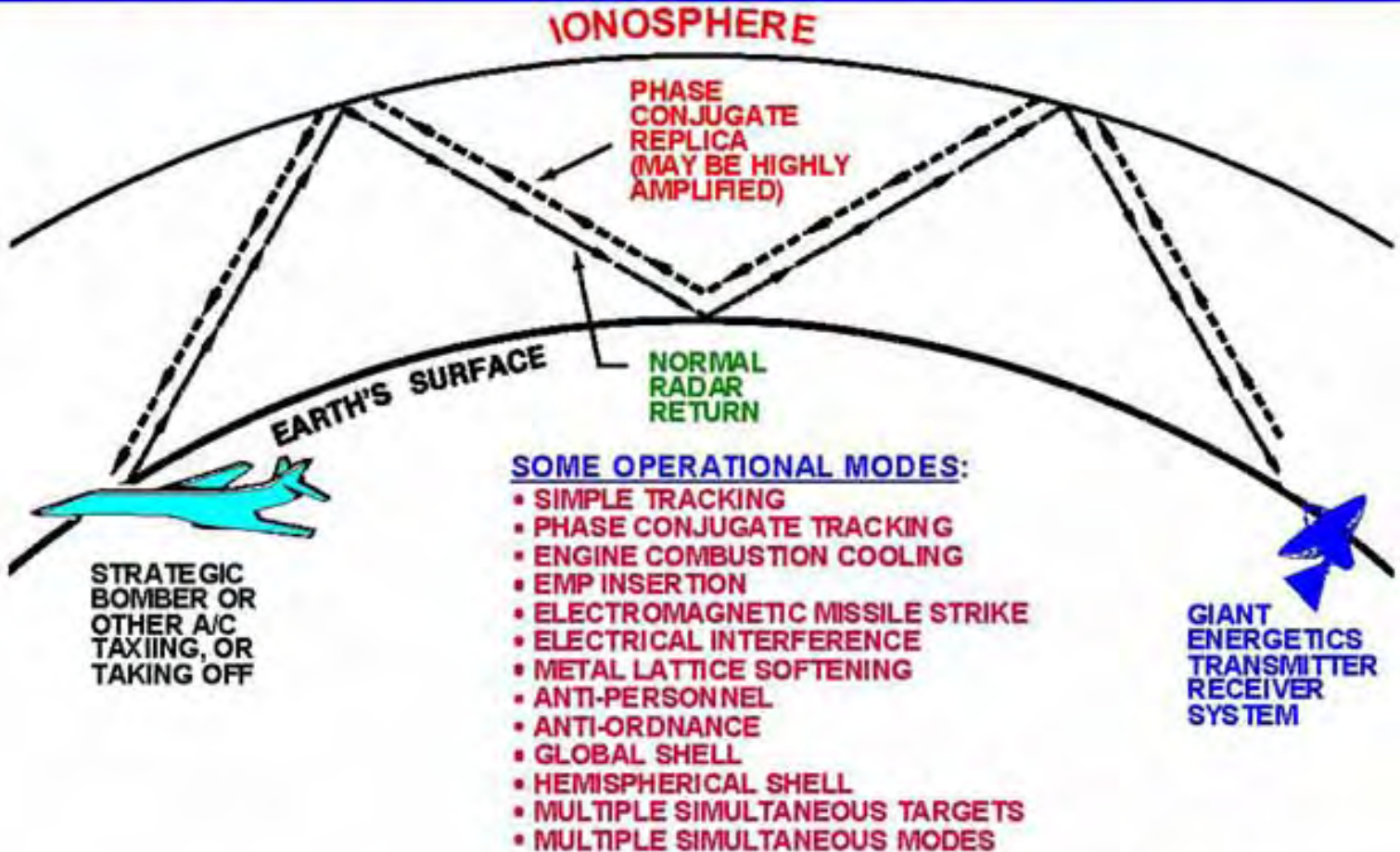




# LAUNCH PHASE ANTIMISSILE SYSTEM



# LAUNCH PHASE ANTI-BOMBER SYSTEM



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# HC-130's ENGINES QUIT, AIRCRAFT CRASHES



At 4 miles altitude,  
all four engines quit,  
one after the other

Routine night training mission  
80 miles off Calif Coast  
Crew of 10 and 1 passenger  
1 survivor

Compare to China Airlines  
Flight 006, 19 Feb. 1985  
off San Francisco, bound  
from Taipei to Los Angeles

Nov. 22, 1996

(C) T.E. BEARDEN 1997

PROBABLE ENDOTHERMIC SUPERPOTENTIAL INTERFEROMETRY  
(Apparently all 4 engines have never before failed on an HC-130)

CTEC PROPRIETARY



## 1996 Actions by this analyst



- In July 1996, with the kill of TWA-800 it became apparent that the KGB/Communists were preparing a massive strategic energetics attack upon the U.S. © T.E. BEARDEN 1997
- Began intensive, nearly round-the-clock effort to uncover what was happening, and what had occurred in KGB/Com weapons since 1991
- Began preparing full-up set of briefing slides simultaneously
  - In early 1996, had briefed J6 on scalar EM, per his request
  - Had strongly suggested a follow-on weapons brief
  - Adamant opposition by NRL, NOL, others
- Similar energetics attack scenario in 1986 was countered. Soviets at that time did not possess operational QP weapons, and so could not successfully overcome dead-man fuzing
  - Also could not dud nukes worldwide, because QP required.
  - First lab prototype QP test was in April 1986
- KGB had solved the dead-man fuzing problem by QP's. Deployed circa 1989-1990. Some earlier weapons then leased.





## **Additional Information Exists;** **Not Analyzed, Not Integrated in Briefing**

- **Yakuza arranged involvement of**
  - Red Chinese
  - North Koreans
  - A Taiwanese element
- **Aum Shinrikyo may have been used as "Red Herring" to deceive West**
- **Oriental faction plots to strike Russians after the successful first strike on West**
- **KGB/Russians aware, will counter**
  - Plan pre-emptive strike against Oriental faction first
  - Have reserved most advanced, powerful energetics weapons for that purpose

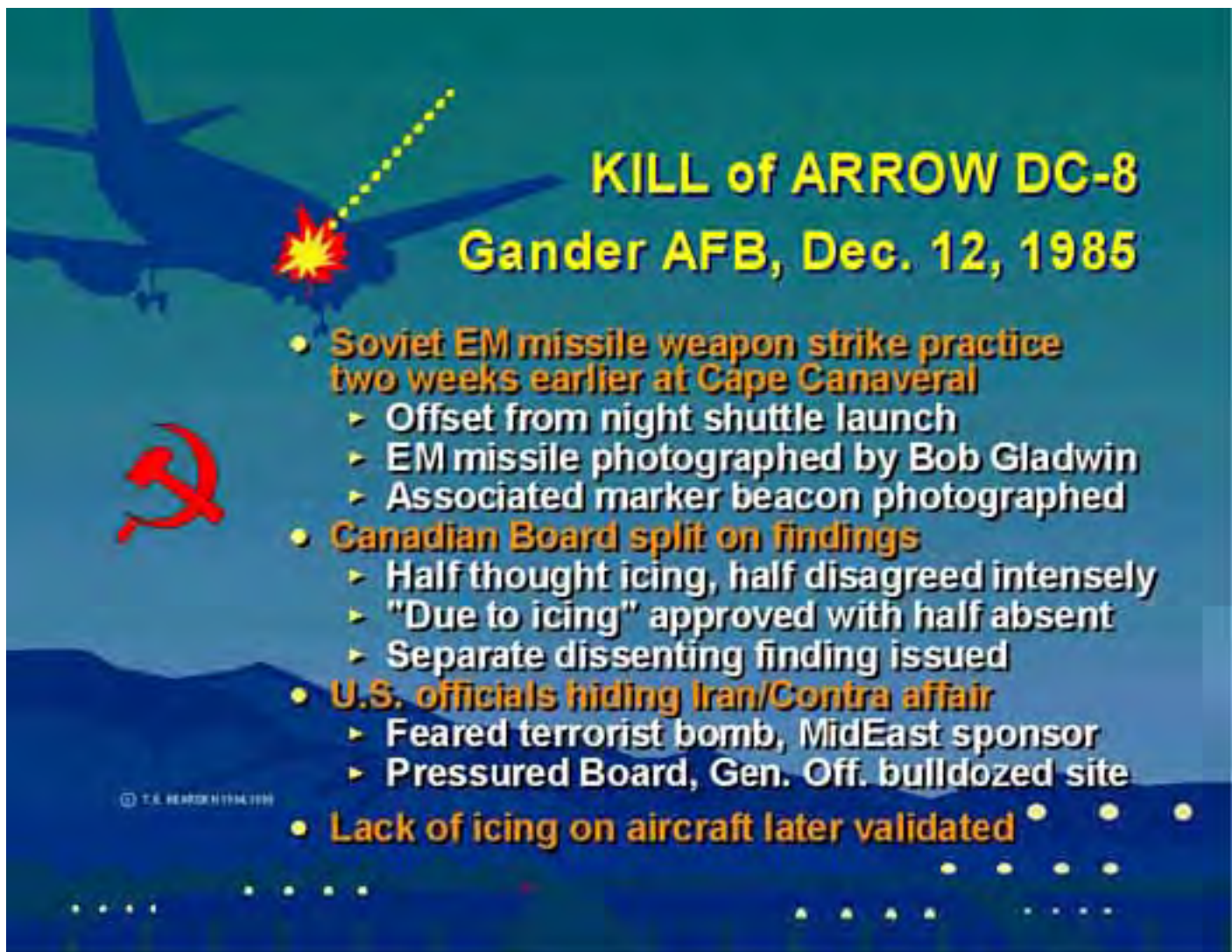
© 1999 T.O. SEARCH



Kill of Arrow DC-8, Gander AFB, Dec. 12,  
1985

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- [Slide 1](#)
- [Slide 2](#)
- [Slide 3](#)
- [Slide 4](#)
- [Slide 5](#)
- [Slide 6](#)



- **Soviet EM missile weapon strike practice two weeks earlier at Cape Canaveral**
  - Offset from night shuttle launch
  - EM missile photographed by Bob Gladwin
  - Associated marker beacon photographed
- **Canadian Board split on findings**
  - Half thought icing, half disagreed intensely
  - "Due to icing" approved with half absent
  - Separate dissenting finding issued
- **U.S. officials hiding Iran/Contra affair**
  - Feared terrorist bomb, MidEast sponsor
  - Pressured Board, Gen. Off. bulldozed site
- **Lack of icing on aircraft later validated**

© T. E. HEARDON 11/19/84, 1999



## **KILL of ARROW DC-8 Gander AFB, Dec. 12, 1985**

- Eyewitness observed beams form in the sky
- Saw streak-down and strike of EM missile
  - Struck right fuselage ahead of the engines
  - Hole was burned through fuselage there
  - Photo of hole published in AW&ST
  - No explosive residues on hole
- Consistent with ignition and outgassing of plastics in forward cabin
- Consistent with pre-crash HCN deaths



© T.E. BORDEN 1989, 1990




## KILL of ARROW DC-8 Gander AFB, Dec. 12, 1985

- Combustion cooling reduced thrust during runup
- Emulated reducing specific thrust by icing
- Struck with EM missile, at liftoff
  - Hole in right fuselage, ahead of engines
  - Not normal explosion; no material ingested
  - EM missile explosively ignited plastics in forward cabin; outgassed poisonous HCN
  - *Autopsies: Half the passengers died from HCN inhalation before plane crashed*
  - Data recorders recorded vertical spike of hit
- Materials handlers later mysteriously sickened, with symptoms of longitudinal EM radiation induced illness



# KILL of ARROW DC-8

Gander AFB, Dec. 12, 1985

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- Combustion cooling reduced thrust during runup
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    - *Autopsies: Half the passengers died from HCN inhalation before plane crashed*
    - Data recorders recorded vertical spike of hit
  - Materials handlers later mysteriously sickened, with symptoms of scalar-EM radiation induced illness
  - *Eye witness observed formation and strike of the electromagnetic missile*





# ***KILL of ARROW DC-8***

## ***Gander AFB, Dec. 12, 1985***

- **Soviet EM missile weapon strike practice two weeks earlier at Cape Canaveral**
  - Offset from night shuttle launch
  - EM missile photographed by Bob Gladwin
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© T.S. DEARDEN 1994, 1995

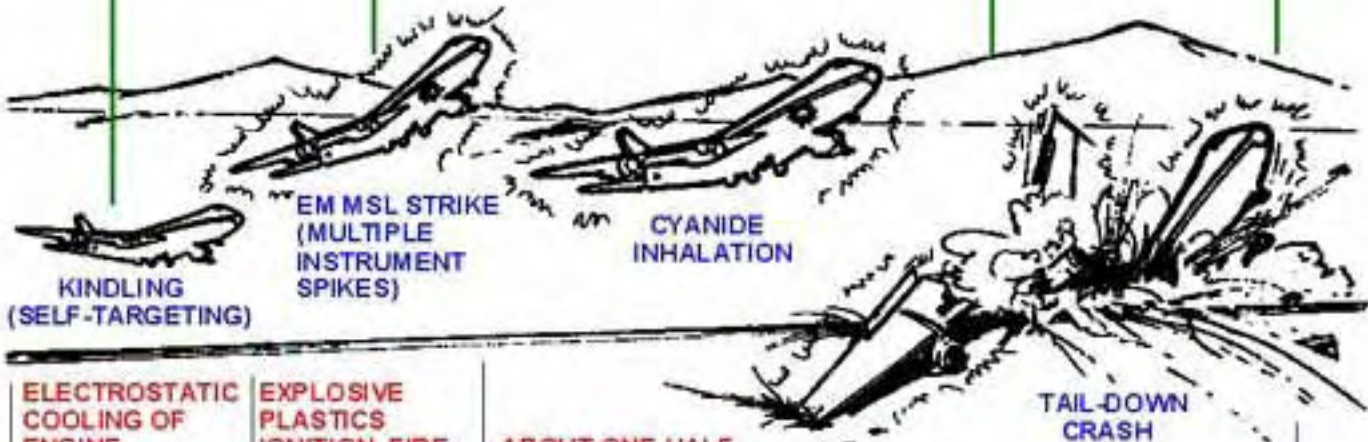
# Death of the Arrow DC-8

**Dec. 12, 1985**  
**Gander, Newfoundland**

**AIRCRAFT GLOWING  
(THRUST REDUCED)**

**FUEL  
EXPLOSION**

**ENGINE THRUST  
IS REDUCING**



**ELECTROSTATIC  
COOLING OF  
ENGINE  
COMBUSTION**

**EXPLOSIVE  
PLASTICS  
IGNITION, FIRE,  
OUTGASSING**

**ABOUT ONE-HALF  
THE OCCUPANTS DIE**

**GRAVITON RADIATION DECAY  
(EXPOSURE OF RECOVERY  
PERSONNEL TO LONGITUDINAL  
EM WAVE RADIATION)**

**GRAVITON CHARGING  
OF ATOMIC NUCLEI**

**HIGHLY CHARGED PULSE  
INTO ATOMIC NUCLEI**





## Satellite Photos of Plumes in Soviet Arctic Since 1974\*



- **Two aircraft flew through for analysis**
  - Solid material, mostly ice, a little clay
  - Much colder than surrounding air
  - Signature of cold exhaust from exothermic scalar interferometry operations
  - No volcanic material
  - No radioactive material
- **May be 2 to 3 times as many incidents**
  - Only examined satellite imagery in winter
  - Only periodic satellite coverage
  - Hypothesized methane venting, cloud seeding



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\*As of 1989, when this information was gathered

# AUM SHINRIKYO

("SUPREME TRUTH" CULT)



**Shoko Asahara, Leader**



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# Ashkhabad Problem and Its Solution



## ■ PROBLEM:

- Stress increasing in two-plate fault zone
- 1,000 shocks yearly
- Kara Kum canal
- Hydraulic pressure
- 1948: Ashkhabad 80% destroyed by quake



## ■ SOLUTION:

- Stress-relieve plate stresses from fault

## ■ IMPLEMENTATION:

- Induce nearby earthquake
- Deceive by predicting a quake, setting off nuclear explosion



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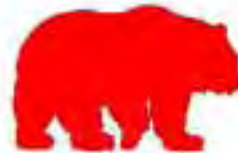
# Strange Characteristics of Iran Quake, Sep. 1978

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## ■ Signatures

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- 7.4 on Richter scale
- No aftershocks: 6.0 expected (normal)
- Strange epicenter
- Anomalous depth



## ■ Deception

- 10 MT Soviet nuclear explosion 36 hours before the quake
- Prior disinformation regarding Soviet attempted development of focusing shock waves from underground nuclear explosions, to cause distant earthquakes

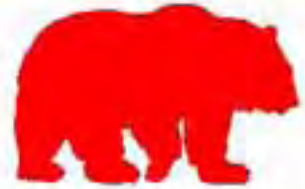




# *Iran Earthquake Sept. 1978*



- **Killed 25,000 Iranians**
- **Soviet city of Ashkhabad saved**
- **Soviets "predicted" quake in advance; then induced it**
- **Quake had serious anomalies (signatures)**
- **Deception measures were used by Soviets**
  - Prediction in advance
  - "Theory" of quake-induction by nuclear explosions
  - Fired underground nuclear explosion as "Red Herring" candidate for cause



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# Situation Now (Assessment)



- In May 1997: second A-10 pilot (lady), in pullup from night ordnance delivery on target, was struck with psychoenergetic weapon takeover. Sense of vertical was reversed. She perceived herself diving, sharply corrected, and dove headlong into the ground.
- Additional aircraft kills uncovered, including one 4-engine aircraft whose engines all failed. This closely repeats the earlier 1985-1987 scenario.
- Korean Airlines Flight 801 crashed on Guam on anniversary of loading of the atomic bomb that was dropped on Hiroshima in WW II. The Enola Gay, which dropped the bomb, took off from Guam in wee morning hours of August 6, 1945. The local opns order on Guam was also issued on Aug. 5.
- *Presently the Coalition (KGB/Communists/Aum Shinrikyo/Yakuza) is waiting for proper time to launch the final strike. It is still on.*



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# **Situation Now (Assessment 2)**

- **April 97: Mind control test against Captain Button:**
  - **Demonstrates ability to control crewman in complex operations for more than one hour.**
  - **KGB requires one hour total QP crew control on a site to have crew disable insane QP wpns.**
- **Once QP systems disabled, Mindsnapper attacks and instantly kills every living thing in QP site area. Contaminates area for months (emits longitudinal EM wave radiation, which disrupt any life forms attempting to enter struck area). Sites nullified.**
- **Mind control over one crewman requires one weapon system plus up to 20-30 operators for controlling thoughts, hearing, perceptions, etc.**
- ***In Apr. 97, KGB building and deploying weapons and training crews. Ready for new attack 1999-2000.***



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# **Aspects of Strong Local Asymmetry**

- **If local asymmetry is strong, conservation laws may be appreciably violated**
  - **Energy**
  - **Charge**
  - **Spin**
  - **Momentum**
  - **Angular momentum**
  
- **Properties of an object may differ appreciably for**
  - **Different observers**
  - **Different detecting means**
  - **One time to another**
  - **One position to another**

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## **Mass Casualty Problem: Aerial Anthrax Spray on Washington, D.C.**

- **One terrorist, one light aircraft with spray tank**
- **One kilogram of anthrax**
- **Flies over greater metropolitan Washington, D.C.**
- **Calm night**
- **1-3 million casualties result\***
- **Most of those stricken will die**
- **Presently little can be done to save the stricken civilians**
- **Attacks on several population centers might produce some 10 million or more casualties**



© 1991 T. E. SEARDEN

\*Per OTA Report to Congress, 1993

# ***Present Status of the WMD Threat to the United States***

- **Many foreign nations are hostile to the U.S. and sponsor terrorists**
- **Some 25 nations have WMD or are acquiring them**
  - **BW agents and weapons**
  - **Chemical agents and weapons**
  - **Nuclear materials and weapons**
- **Thousands of students and émigrés**
- **Infiltrated teams, BW, other WMD already**
- **Castro guerrillas infiltrated over the years**
- **Can do unacceptable damage to U.S. now**
- **May reach first strike knockout capability**



© 1993 T. E. BEARDEN

\*Per OTA Report to Congress, 1993



# Some Present Problems in the U.S. WMD Defense Capabilities

- **No shelters (require overpressure, BW filtering, masks, showers, supplies)**
- **No stockpiled vaccines, medical supplies, immunoglobulins, masks, suits, food, fuel, generators, heaters, water purification units**
- **Totally insufficient medical facilities, personnel, and emergency response teams**
- **Triage, full martial law will be required**
- **No answer to massive decontamination problem**
- **State, county, city inadequately staffed and insufficiently trained for mass casualties**
- **Terrorist teams, BW agents, other WMD on site, waiting**
- **Water supplies, food, crops, farm animals also vulnerable**
- **Electric power grid, bridges, trains, railroads vulnerable**
- **Present medical science cannot save very many of the casualties, now or in the foreseeable future**



# **Internal Terrorist Threat with Weapons of Mass Destruction: Now & Future**



## **TODAY:**

- Sabotage
- Chemicals
- Biological agents
- Nuclear materials
- Powerful explosives
- Assassination
- Kidnapping and hostages
- Contamination
- Shoulder-fired AD missiles
- Terrorism

## **FUTURE ADDITIONS:**

- Orthodox EM weapons
- Energetics EM biological warfare
- Scalar EM (energetics) weapons
- Scalar EM disease induction
- Alteration of behavior and emotions
- Alteration of memory
- Direct control of thoughts, perception
- Quantum potential weapons
- Psychoenergetics weapons
- Action-at-a-distance effects



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# Attempt to Ban Energetics Weapons Worldwide



- On June 13, 1975, in a major speech Brezhnev urged the United States to agree on a ban of research and development of new kinds of weapons "more terrible than anything the world has known."
- On July 2, 1975 Brezhnev repeated his proposed ban on development of frightful new weapons, to a group of U.S. Senators.
- In August 1975, Ponomarev called for a ban on frightful new weapons of mass destruction.
- On Sept. 23, 1975 Gromyko presented a draft treaty agreement to the 30th Session of the UN General Assembly, for banning development of frightful new weapons.
- No one had the foggiest notion what the Russians were talking about!



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# Brezhnev's Schedule



**"We are achieving with detente what our predecessors have been unable to achieve with the mailed fist...  
...by 1985 our power will be so irresistible that we can do what we wish anywhere on the globe."**

Leonid Brezhnev,  
In a secret 1973 meeting in Prague  
with European Communist leaders.



**"By the early 1980's we and our allies will control the high seas, space, and most of the earth's land area."**

Kosygin,  
to Imelda Marcos,  
July 1978



***In 1985-87, the Soviets did attempt to move, still constrained by nuclear dead man fuzing. That attempt was blocked, primarily by scalar EM countering demonstrations and dead man fuzing.***

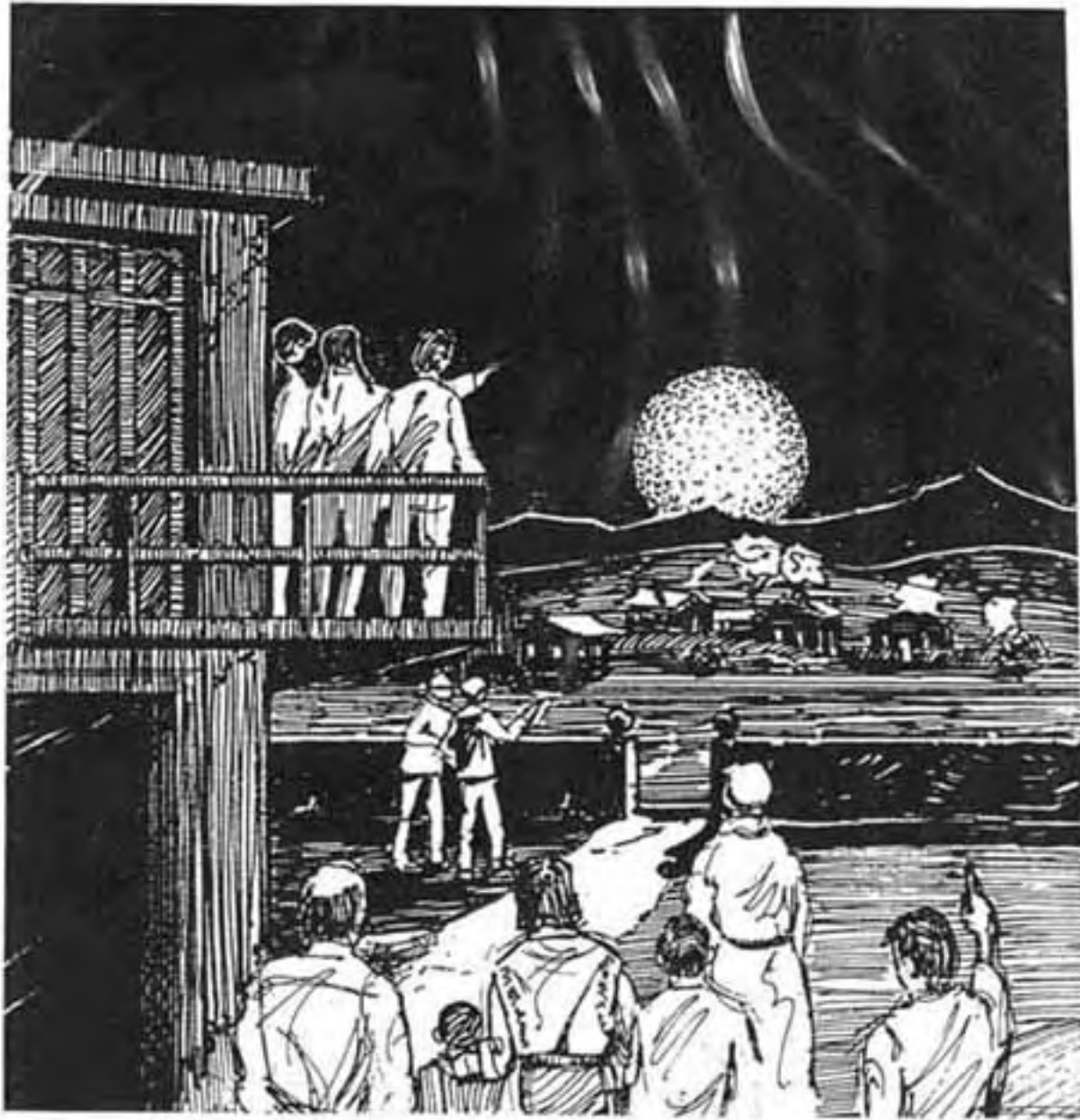


**In April 1986, the first Soviet lab prototype of a quantum potential weapon specifically designed toward 10-min neutralization of nukes worldwide was gingerly tested against our U.S. airstrike on Libya. It was weakly tested in the "induced EMI" mode, for deception.**

***By 1990 that weapon was deployed and a new attack preparation phase was entered, scheduled for 1997.***

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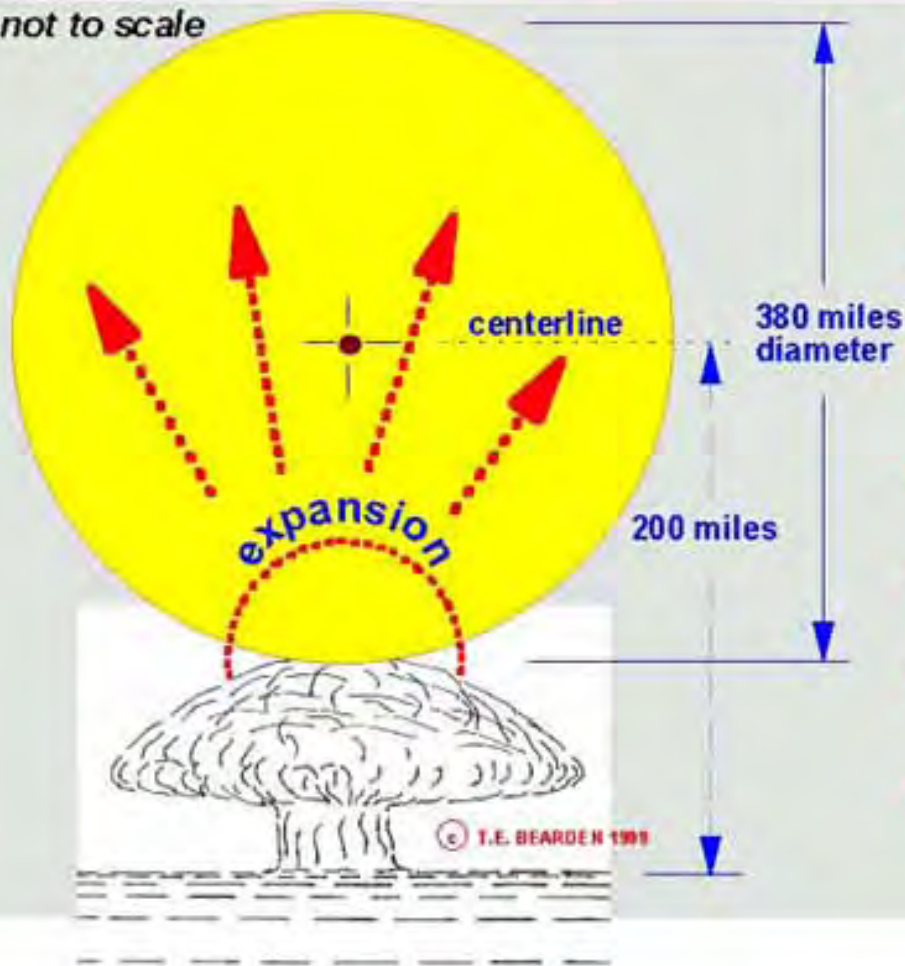




# **COLD EXPLOSION -- 9 April 1984 Near Kurils**

## **And Formation and growth of spherical shell (globe)**

not to scale



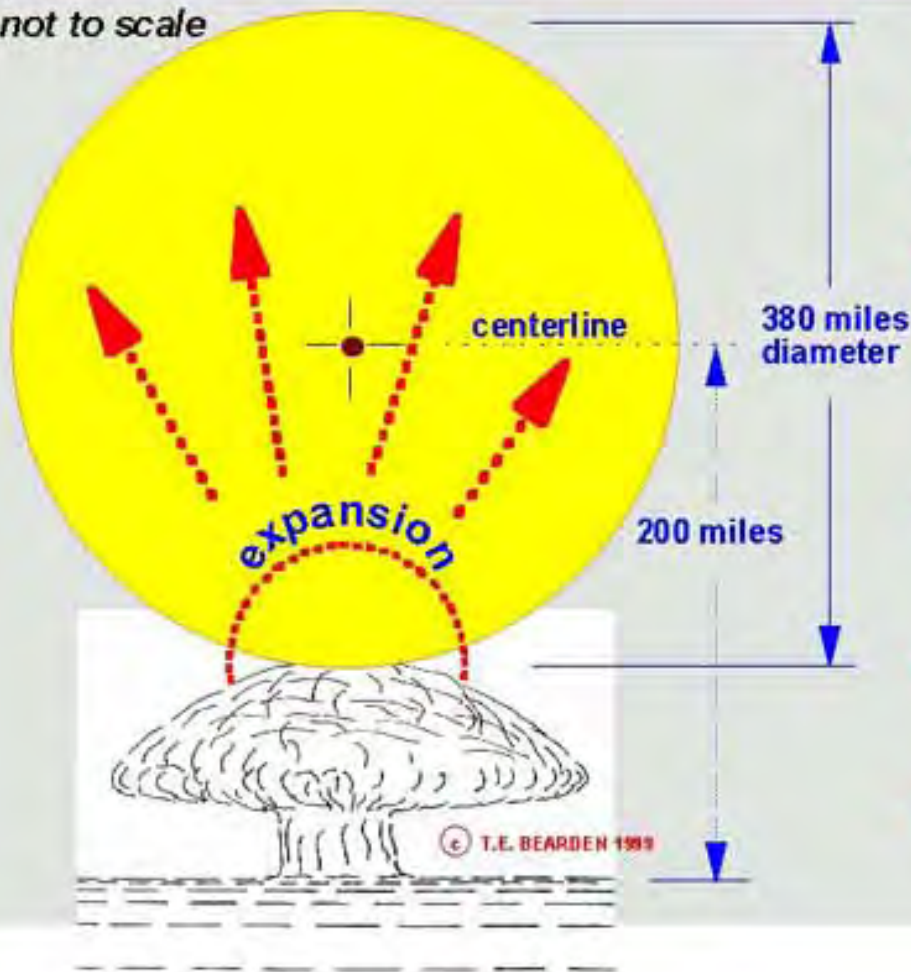
### **Sequence of Events**

- Geyser of water rose rapidly from surface, mushroomed out
- Reached 60,000 feet altitude in two minutes
- Brilliantly glowing globe then appeared in top
- Globe increased greatly in size and altitude
- Reached diameter of 380 miles
- Center reached altitude of 200 miles
- Observed by multiple qualified pilots

# **COLD EXPLOSION -- 9 April 1984 Near Kurils**

## **And Formation and growth of spherical shell (globe)**

not to scale



### **What They Were**

- **Superpotential interferometry using LWs**
- **First, a cold explosion just above surface**
- **Then small intense shell of glowing EM energy for 1-on-1 targeting**
- **Larger globe for large area as for ICBM targets approaching in zone**
- **With ST engines, can dud incoming nukes and all electronics**
- **Use in or out of Earth's atmosphere**



# ***COLD EXPLOSION -- 9 April 1984 Near Kurils (Plus additional weapons effects)***





# Countering Insane Mad Systems: Find Loophole, Exploit It




- If MADs not quantum potential systems, easily countered by instant QP strike which destroys targeted MAD weapons worldwide with certainty.
- Have to be certain of types of dead-man fuzing. All dead-man fuzing weapons must be included in the assured target list for the striking quantum potential weapon.
- Multiple targeted MADS require multiple vacuum engines in the striking quantum potentials.
- Uncertainty and risk introduced if not certain of all MAD systems and all dead-man fuzing systems.
- **Newest generation psychoenergetic LW interferometry weapons can instantly take over minds of all personnel on targeted sites, with targeted crews quickly disarming their own MAD weapons' launch capability as well as the weapons themselves.**
- **Mindsnapper then kills all living things and contaminates sites.**
- **Next generation QP Psy-En weapons can disrupt and destroy minds of an entire targeted national population. The nature of warfare moves irrevocably to the human mind, where of course the fundamental problem arises anyhow.**

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- **Localized quantum potential in an area, used in psychoenergetics mode**
    - Gradually produces mild, continuous hypnotic state
    - Targeted population remains entirely conscious, functional
    - Internal "word thoughts" emerge directly in subconscious
    - Targeted persons all unaware of these "word thoughts"
    - Operates somewhat similar to "post hypnotic suggestion"
    - Gradually changes emotions, psychological outlook
    - Over a period of time, deviates and entrains entire target population's outlook, belief structure, temperament
  - **Moves Psywar to inside the human component**
  - **Human minds are the only battleground**
  - **Can be accomplished without overt signature**
  - **Countered only by inserting same methodology into deeper mind level (collective unconscious)**
- 
- © 1997 VANCE E. BEARDEN



# Simultaneous Dudding of Nuclear Weapons Worldwide

- Via quantum potential joining U235 and Plutonium in warheads
- Includes weapons airborne, underwater, in storage
- These are transmutations of the nuclides themselves
- Part of the initial barrage launched by Aum/Yakuza/KGB
- Will occur in the first minutes of the strategic strike, following psychoenergetically crew-disabling QP weapons



Note: Duds both overt and covert nuclear weapons and weapons-grade materials -- including "suitcase-delivered" covert weapons on site in Russia which otherwise provide dead man fuzing

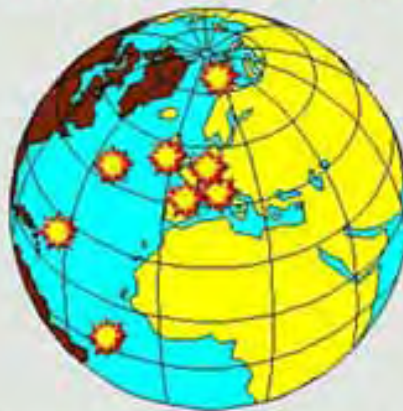
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# Simultaneous Dudding of Nuclear Weapons Worldwide



- Via quantum potential joining U235 and Plutonium warheads
- Includes weapons airborne, underwater, in storage
- These are not explosions, but are transmutations and increased fissioning rates
- Part of the initial barrage launched by Aum/Yakuza/KGB
- Will occur in the first minutes of the strategic strike

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Note: Duds both overt and covert nuclear weapons and weapons-grade materials.





## Operation Divine Wind II

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[Slide 1](#)

[Slide 2](#)

[Slide 3](#)

[Slide 4](#)



YAKUZA &  
AUM SHINRIKYO

## DIVINE WIND II

U.S.



MINDSNAPPER AND  
PSYCHOENERGETICS



QUANTUM  
POTENTIAL

- ★ **A secret coalition of Yakuza/Aum Shinrikyo and KGB/Communist forces plan to launch a massive, surprise energetics attack on the United States, given a low-risk opportunity.**
- ★ **Major weapons utilized will be the scalar EM (energetics) superweapons (including quantum potential weapons) that were developed, deployed, and operated by the KGB under the former Soviet Empire, and continuing after its dissolution.**
- ★ **Yakuza/Aum crews have extensively trained and test-fired, from on-site in Russia. They have leased operational control of the first three generation energetics superweapons (which work by superpotential interferometry).**
- ★ ***The Escalation Phase of interdicting and destroying actual U.S. targets (e.g., TWA-800, two A-10s) is already underway.***
- ★ ***The first blow in the Strike Phase will dud all nuclear weapons and weapons materials worldwide, in minutes; destroy special ship and energetics weapon sites instantly, disable 99% of the U.S. population instantly, and kill 80% of targeted populations in from 10 minutes to 3 days.***

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YAKUZA &  
AUM SHINRIKYO

## DIVINE WIND II

U.S.



- ★ A secret coalition of Yakuza/Aum Shinrikyo and KGB/Communist forces plans to launch a massive, surprise energetics attack on the United States and its allies, given the first low-risk opportunity.
- ★ Attack was thwarted twice in 1997 by a small nation countering with QP weapons.
- ★ KGB psychoenergetics counter for the last QP weapon counter was tested in April 1997.
- ★ Ready time for a new scheduled attack is latter quarter 1999 through first half of 2000.

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KGB



YAKUZA &  
AUM SHINRIKYO

## DIVINE WIND II



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★ **A secret coalition of Yakuza/Aum and KGB/Communist forces will launch a massive, surprise, strategic attack on the United States in 1997.**

★ **Major weapons utilized will be the scalar EM (energetics) superweapons that were developed, deployed, and operated by the KGB under the former Soviet Empire, and continuing after its dissolution.**



KGB/COMMUNISTS

★ **Yakuza/Aum crews have extensively trained and test-fired, from on-site in Russia. They have leased operational control of the energetics superweapons.**



MINDSNAPPER

★ ***Escalation Phase of interdicting and destroying actual U.S. targets (e.g., TWA-800) is already underway.***

★ ***The first blow in the Strike Phase will dud all nuclear weapons and weapons materials worldwide, in minutes; destroy special ship and energetics weapon sites instantly, and kill 80% of targeted populations in 3 days.***



QUANTUM  
POTENTIAL





# OPERATION DIVINE WIND II

## Three Phases and Support



### Operational Phases

- Phase I: On-Site Training Phase (Completed)
- Phase II: Escalation Phase (In Progress)
- Phase III. 1997 Strategic Strike on the U.S.
  - *First strike (QP) in Phase III duds all nuclear weapons and nuclear powerplants worldwide, in minutes*
  - *Psychoenergetic strike (QP) disables people instantly*
  - *Mindsnapper attack of special assets for 100% success*
  - *QP initiation of fast-acting, lethal diseases kills 80% of targeted populations in three days or less*

### Support Plans

- Plan A: Feints, Deception, Sabotage, and Terrorism
- Plan B: Testing and Test Range
- Plan C: Worldwide Weather Engineering
- Plan D: Strategic and Combat Intelligence



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# ***Advanced EMBW Applications***

- **Covert EMBW: Examples**
  - Activate materials and their potentials with ST disease engines. Potentials superpose and their infolded ST dynamics diffuse
  - Activate water's structuring (H-bonding) potential with disease engines
  - Bias electrical power grid ground fields by weak diseases
  - Employ disease-structured quantum potential in distant area
- **Overt death ray (mind snapper)**
  - Powerful scalar EM pulse in target area "jerks" rate of flow of time
  - The "time snap" sharply separates mind from body and each cell
- **EMBW CM:**
  - Irradiate bodies with longitudinal EM waves; self-converts to t-pumping and produces exact amplified ST antiengine
  - Antiengine arises out of local ST, affects all parts of all cells
  - Cells are t-charged with antiengine structure
  - Continuing action restores regenerative and immune systems and reverses cellular damage

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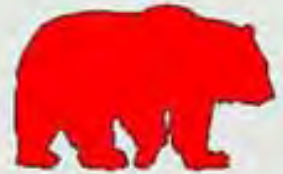
# EM Biological Warfare (EMBW)

- **KGB/Communists have developed highly effective**
  - **Electromagnetic biological warfare (EMBW)**
  - **Counters to orthodox biological warfare**
  - **Mass death ray weapons**
    - Small version of "mindsnapper" tested in Afghanistan
    - Killed occupants in two villages, in separate strikes
    - Unusual aspects (so-called "smerch" gas)
- **Russia/KGB is the only group with a complete counter to biological warfare, either covert or overt, and to EMBW**
- **EMBW (covert and overt) is a preferred option for KGB**
  - **MAD Doctrine is completely destabilized for a sufficiently covert Russian EMBW strike**
  - **Situation has existed for at least two decades**
  - **Can alter germs, bacteria, viruses of specific kind, in a specific target area, to produce antibiotic-resistant strains**
  - **Can induce any kind of cellular disease or damage at a distance**
- **U.S. national characteristic: no reaction to slowly increasing threat**

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# Microwave Radiation of U.S. Embassy in Moscow



Former U.S. Embassy in Moscow.



## BACKGROUND

- Began in latter 1950s
- Discovered on VP Nixon's trip
- Initially thought to be *nuclear* radiation (Discovered w/Gelger counter?)
- High level target – U.S. Ambassador
- Guarantees personal attention of:
  - U.S. Ambassador to USSR
  - U.S. President
  - NSA, CIA, DIA, NSC, etc.
  - Top consulting scientists
  - Leading U.S. scientific institutions
- Two U.S. Ambassadors died, another sickened
- Anomalous health changes in personnel, only in zero-field (zero pot'l gradient) areas!
- Four U.S. Presidents requested Soviets cease
  - Cut from 18 watts/sq cm to 2
  - Then again increased
- No one could understand what was going on
- Aluminum screens were placed over windows
- Moscow was declared a hazardous duty zone



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# Pentagon EMI Studies, 1989

Washington Post, 22 Jan. 1989, p. A4

- **Analysts of severe EMI effects in strike on Libya, 1986**
  - performed major 3-year, 66-man study
  - Blamed effects on U.S. forces' own signals
  - Did not know of any other "signals" present
  - Knew nothing of quantum potential weaponry, energetics weaponry
- **7-month preliminary study**
  - Severe EMI Problem exists
  - EMI shielding often waived in our weapon systems
  - Thousands of conflicts possible
- **Also studied UH60 Blackhawk helicopter problems (which were due to its lack of good EMI shielding, and not quantum potentials)**
  - uncommanded turns
  - Five EMI crashes 1982-1989
  - \$175 M program to shield it
- **So found that U.S. transmission combinations can**
  - **Affect aircraft flight control**
  - **Turn off fuel supply**
  - **Cause uncommanded dive/turn**
  - **Bring down U.S. warplanes**
- ***Actually, Libyan EMI was induced by Soviet quantum potential tests which can do all those things and much more***



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## EM Missile Practice

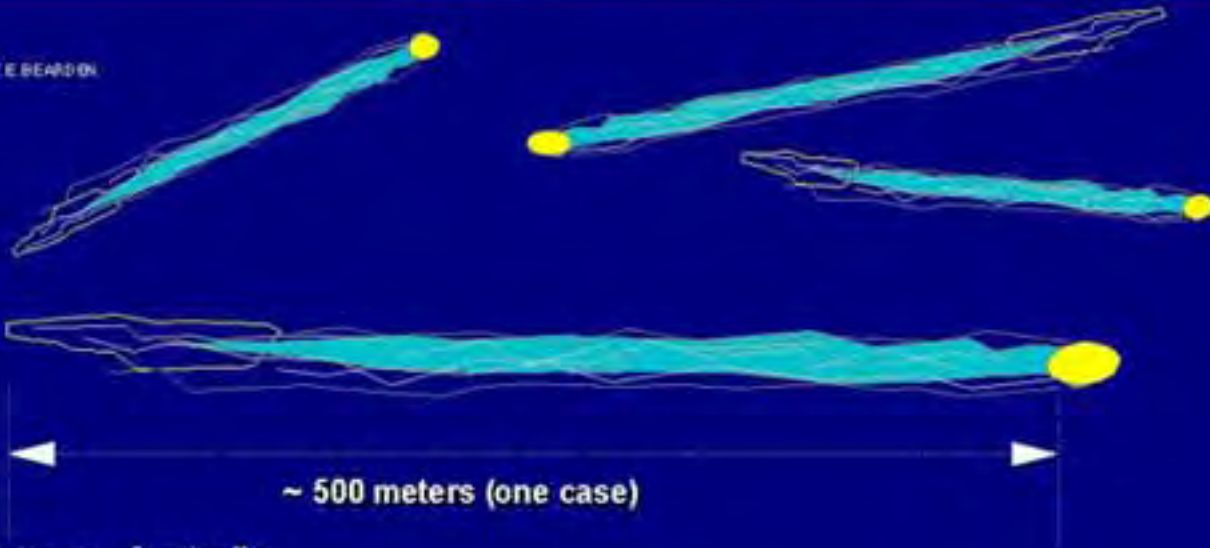
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- [EM Missile Practice](#)  
Latter Sept. - Early Nov. 1996  
Melbourne, Australia
- [Deception: Using EM Missile to Reinforce  
Notion of SAM Attack](#)  
Saturday evening, Nov. 16, 1996
- [Intelligence Probe: Insuring U.S. Still  
Unaware of Energetics Weaponry](#)  
Thursday, December 12th, 1996
- [EM Missile Strike, Offset from Night  
Shuttle Launch, Cape Canaveral, Florida](#)  
The Smoking Gun in November 1985
- [Distant Operator Onsite in Russia Slew  
Away Registration Point](#)  
Marker Beacon over Night Shuttle Launch,  
26 November, 1985
- [EM Missile Practice and Deception](#)  
November 17, 1996

**EM Missile Practice**  
**Latter Sept.-Early Nov. 1996**  
**(Multiple Nights, Multiple Streaks Each)**  
*(Many Witnesses)*



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Melbourne, Australia  
Australian Associated Press  
Nov. 2, 1996



# Deception: Using EM Missile to Reinforce Notion of SAM Attack

Saturday Evening  
Nov. 16, 1996



Note: Meteor shower was forecast, which provided perfect decoy to FBI investigators, to steer them off the true scent.



Pakistan International Airlines  
Flight 712, just after takeoff  
from John F. Kennedy Airport,  
on path similar to that taken by  
TWA Flight 800, July 17, 1996

© T.E. BEARDEN 1996

# Intelligence Probe: Insuring U.S. Still Unaware of Energetics Weaponry

Thursday  
Dec. 12, 1996

Pilot sighted what he called  
a "green flare".  
No danger, no evasive action.



Saudi Arabian Airlines 747  
en route from Riyadh, Saudi Arabia  
to John F. Kennedy Airport.  
At 12,000 ft., not far from where  
TWA Flight 800 was killed on July 17, 1996

**FBI: "Probably a meteorite."**

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# ***EM Missile Strike, Offset from Night Shuttle Launch***

**Cape Canaveral, Florida**



EM MISSILE STRIKE  
26 NOV 1985  
(LIGHT DEVELOPMENT)  
OFFSET FROM NIGHT SHUTTLE LAUNCH

PHOTO BY BOB GLADWIN

EM MISSILE STRIKE  
26 NOV 1985  
(DARK DEVELOPMENT)

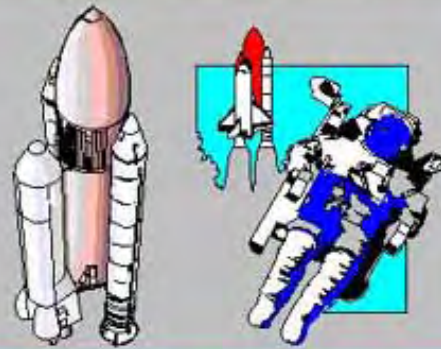
OFFSET FROM NIGHT SHUTTLE LAUNCH

MARKER BEACON

Over Night Shuttle Launch  
Cape Canaveral, Florida

26 Nov 1985  
Photographed by George Suchary

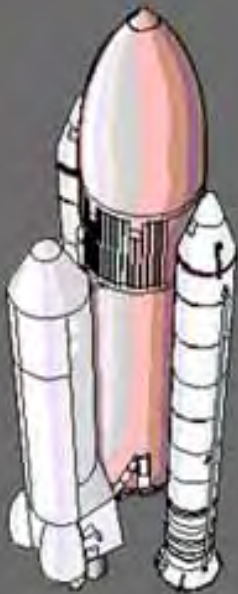
© T.E. BEARDEN 1986, 1999,



***The Smoking Gun in Nov. 1985***



© T.E. BEARDEN 1995, 1999.



28 Nov 1985

## ***Distant Operator Onsite in Russia Slews Away Registration Point***

### **MARKER BEACON**

Over Night Shuttle Launch  
Cape Canaveral, Florida

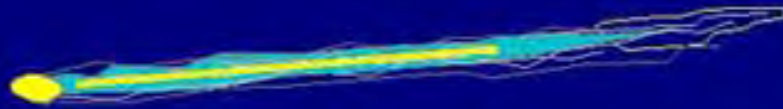


26 Nov 1985  
Photographed by George Suchary

**Two weeks later, the same weapon killed the Arrow DC-8  
at its takeoff from Gander, Newfoundland.**

# EM MISSILE PRACTICE AND DECEPTION

Nov. 17, 1996 at 2220 hrs.



Lufthansa 405



Speed Bird 226

**Note: 4-month  
anniversary  
of kill of TWA-800.  
"Inside gloating" by  
Aum/Yakuza/KGB.**

Vicinity of Long Island, New York  
Not far from where TWA-800 was killed  
Two aircraft sighted object

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# Subdivisions of Soviet Energetics



## NONLIVING SYSTEMS

### Energetics

- Nonliving systems
- Scalar Interferometry
- Action-at-a-Distance
- Quantum Potential
- Vacuum Engines
- Spacetime Structuring
- Material, Field Effects
- Nuclei, Lattice Changes
- Hidden EM Variables
- SWZ Effects

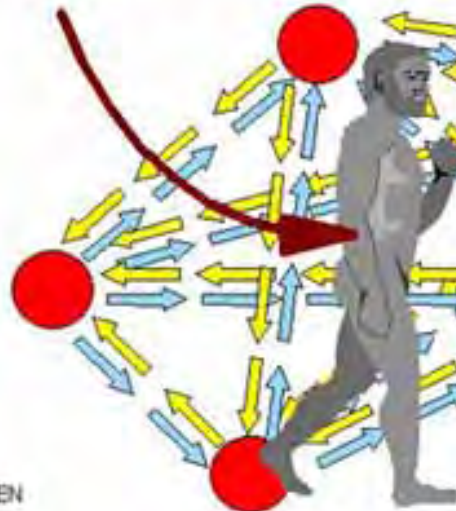


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## LIVING SYSTEMS

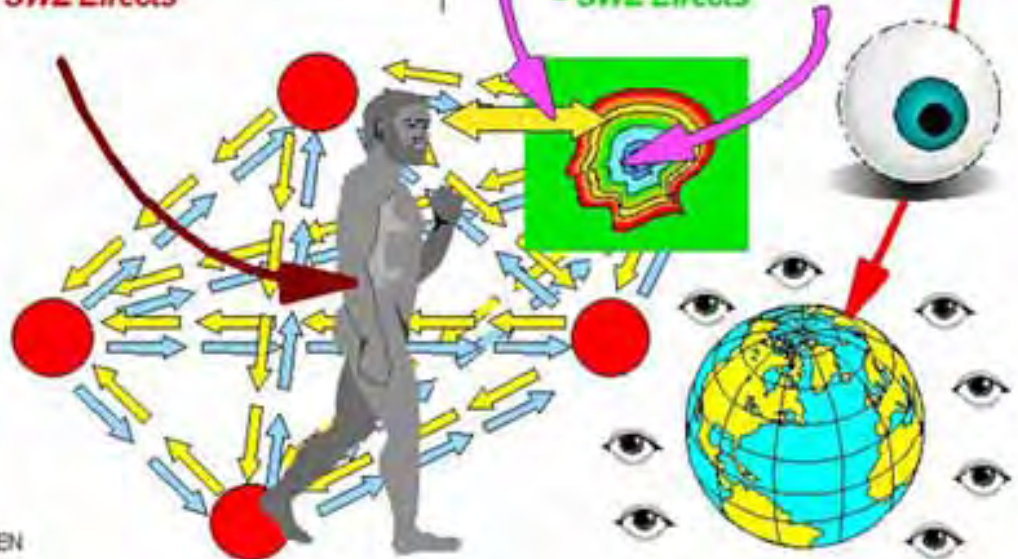
### Bioenergetics

- Living Systems (Bodies)
- Cells, cellular changes
- Master Cell Control (Popp)
- Spacetime Structuring
- Disease Induction, Remission
- Action-at-a-Distance
- Quantum Potentials
- Scalar Interferometry
- Hidden EM Variables
- SWZ Effects



### Psychoenergetics

- Living Systems (Minds)
- Thoughts, Memories, Emotions
- Conscious/Unconscious Minds
- Spacetime Structuring
- Species, Biospheric Minds
- Action-at-a-Distance
- Quantum Potentials
- Scalar Interferometry
- Hidden EM Variables
- SWZ Effects





# Communism's Goal

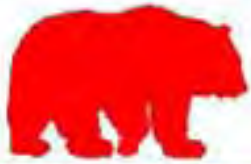


- "War to the hilt between communism and capitalism is inevitable. Today, of course, we are not strong enough to attack... To win we shall need the element of surprise. The bourgeoisie will have to be put to sleep. So we shall begin by launching the most spectacular peace movements on record. There will be electrifying overtures and unheard-of concessions. The capitalist countries, stupid and decadent, will rejoice to cooperate in their own destruction. They will leap at another chance to be friends. As soon as their guard is down, we shall smash them with our clenched fist."

Dimitry Z. Manuisky  
Lenin School of Political Warfare, Moscow  
(circa 1934)

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# Manuilsky's Goal vs. Status Today



Manuilsky, 1934	Situation, Dec. 1996
■ War is inevitable.	■ Has not changed.
■ Not strong enough to attack now.	■ Strong enough now; preparations completed. Need right opportunity.
■ Need surprise.	■ Have achieved total surprise.
■ Must put us to sleep.	■ We are sound asleep.
■ Need most spectacular peace movement on record.	■ Done. We think the Russian threat gone, cold war ended.
■ Electrifying overtures, unheard-of concessions.	■ Done, and still occurring every day. It has worked beautifully.
■ Capitalists will cooperate. They will leap to be friends.	■ We are cooperating in spades! ■ We've leaped, and are leaping.
■ They will let down their guard.	■ No ABM, junked lots of nukes, shrunk our forces to the bone.
■ We'll strike them then.	■ They would have struck (twice) in 1997, but for deterrence by another nation (not U.S.) having QP weapons ■ <i>They are still looking for a risk-free opening to strike</i>

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## **Professor Hellman, German Scientist Released from Work in Soviet Union**

- **Worked in Soviet Union after WWII**
- **Eventually escaped to Germany, then to Brazil (handsome offer)**
- **Took part in highly unusual Soviet energetics development and experiments**
- **Large areas of the sea could be and were suddenly frozen**
- **No particular attention was paid to this information by highly qualified scientists**
- **In intelligence terms, this is A-1 information of the highest caliber**
- **Bohm also was invited to Brazil, which started an energetics weapon program. Brazil developed such weapons including weak quantum potential weapons (0.95 confidence)**

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## Hemispheres of Light

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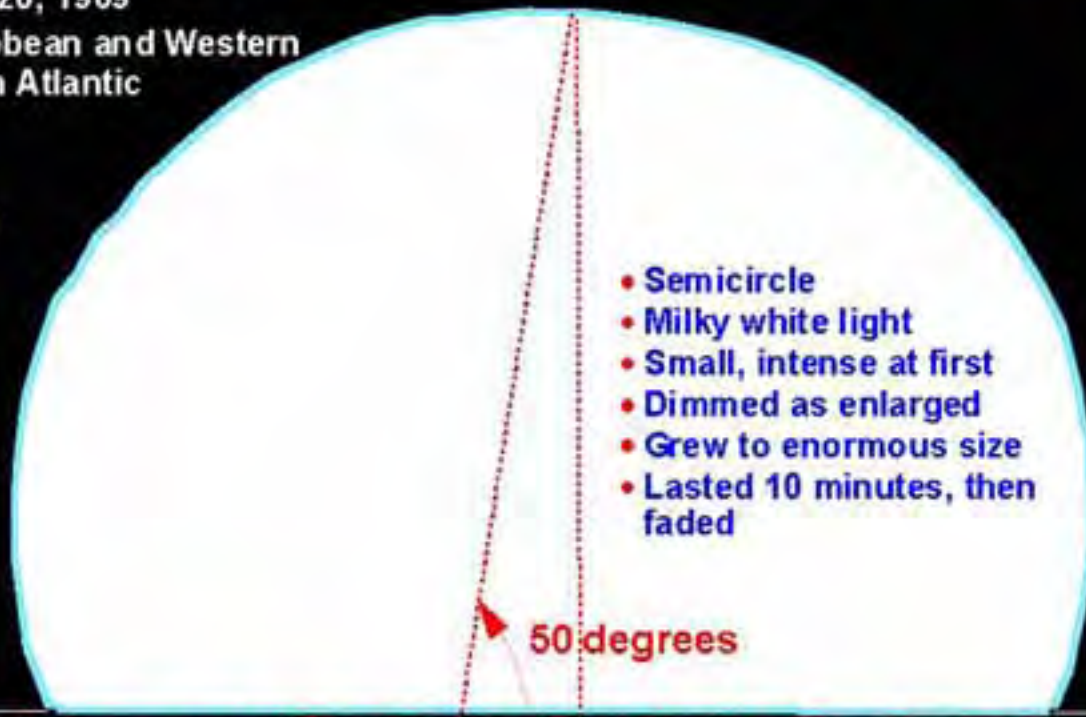
- [March 20th, 1969](#)  
[Caribbean and Western North Atlantic](#)
- [Hemisphere and Globes, 1977](#)  
24 March, 1977
- [Virgin Islands Incident](#)  
August 1969
- [Typical Shield Test, Northern Route to Japan](#)  
June, 1982

# Expanding Hemisphere of Light

Mar. 20, 1969

Caribbean and Western  
North Atlantic

MOON



- Semicircle
- Milky white light
- Small, intense at first
- Dimmed as enlarged
- Grew to enormous size
- Lasted 10 minutes, then faded

50 degrees

70 degrees

Marine Observer  
40:17, 1970

© T. E. BEARD 1996

# Hemisphere and Globes 1977

0855 GMT, 24 Mar 1977  
M.V. Kinpurnie Castle  
23° 05' N; 17° 25' W

Disappeared  
after 10 minutes

2nd luminous  
patch

Moderately  
luminous  
hemisphere  
formed

Bright luminous  
patch (1° diameter)

Required  
3 minutes  
to form

For 10 sec,  
"searchlight"  
shined down

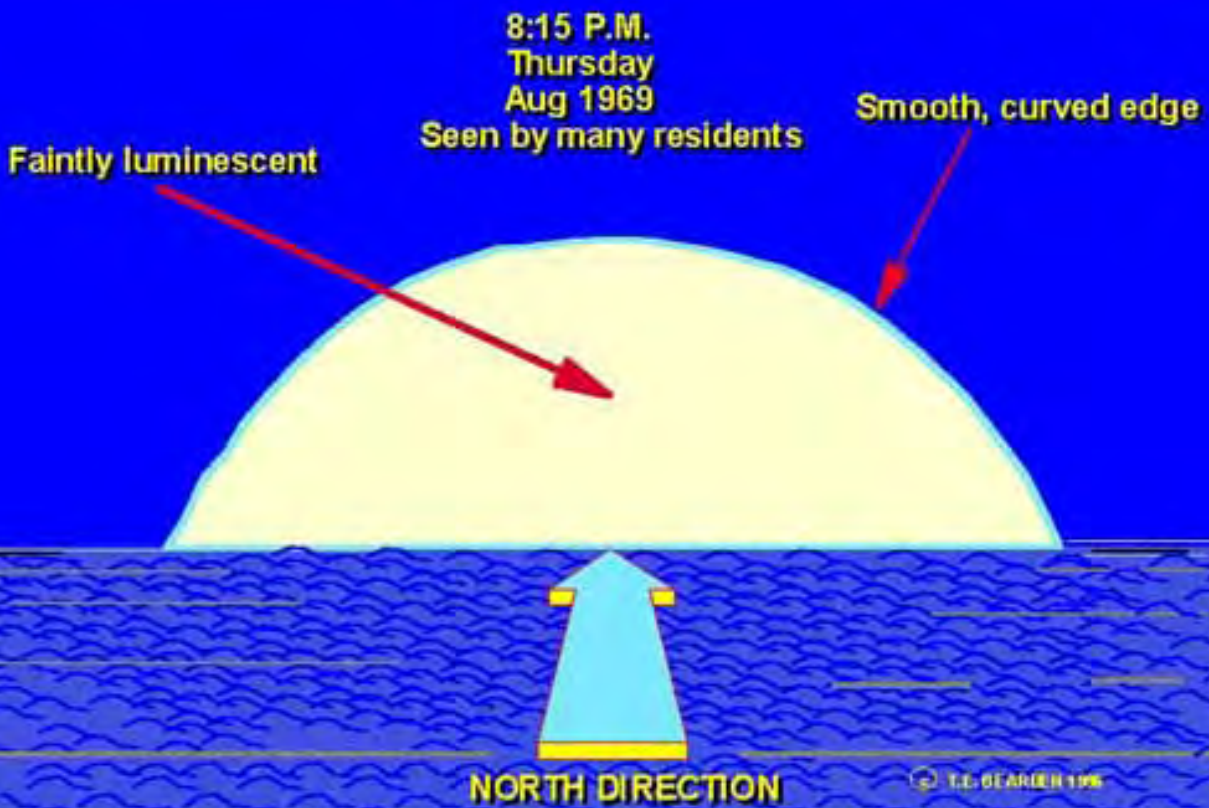
30°

40°

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Marine Observer  
48:21-22, 1978

# 1969 Virgin Islands Incident





## Typical Shield Test, Northern Route to Japan



Asahi Evening News, Tokyo  
June 22, 1982

Multiple tests seen per month, for years.  
Pilots simply ceased reporting them.

© T.E. BEARDEN 1994, 1995



# How Could Such Superweapons Ever Be Concealed?

- Arthur C. Clarke's law states:

*"Any sufficiently advanced technology is indistinguishable from magic."*

- To U.S. scientists, "magic" means "impossible"
- Longitudinal EM waves and LW interferometers have been regarded as fantasy and impossible
- To deceive foe on rather open use of unknown technology without discovery:

*"Disguise its uses as understandable accidents, human error, acts of nature, other known technology, etc."*

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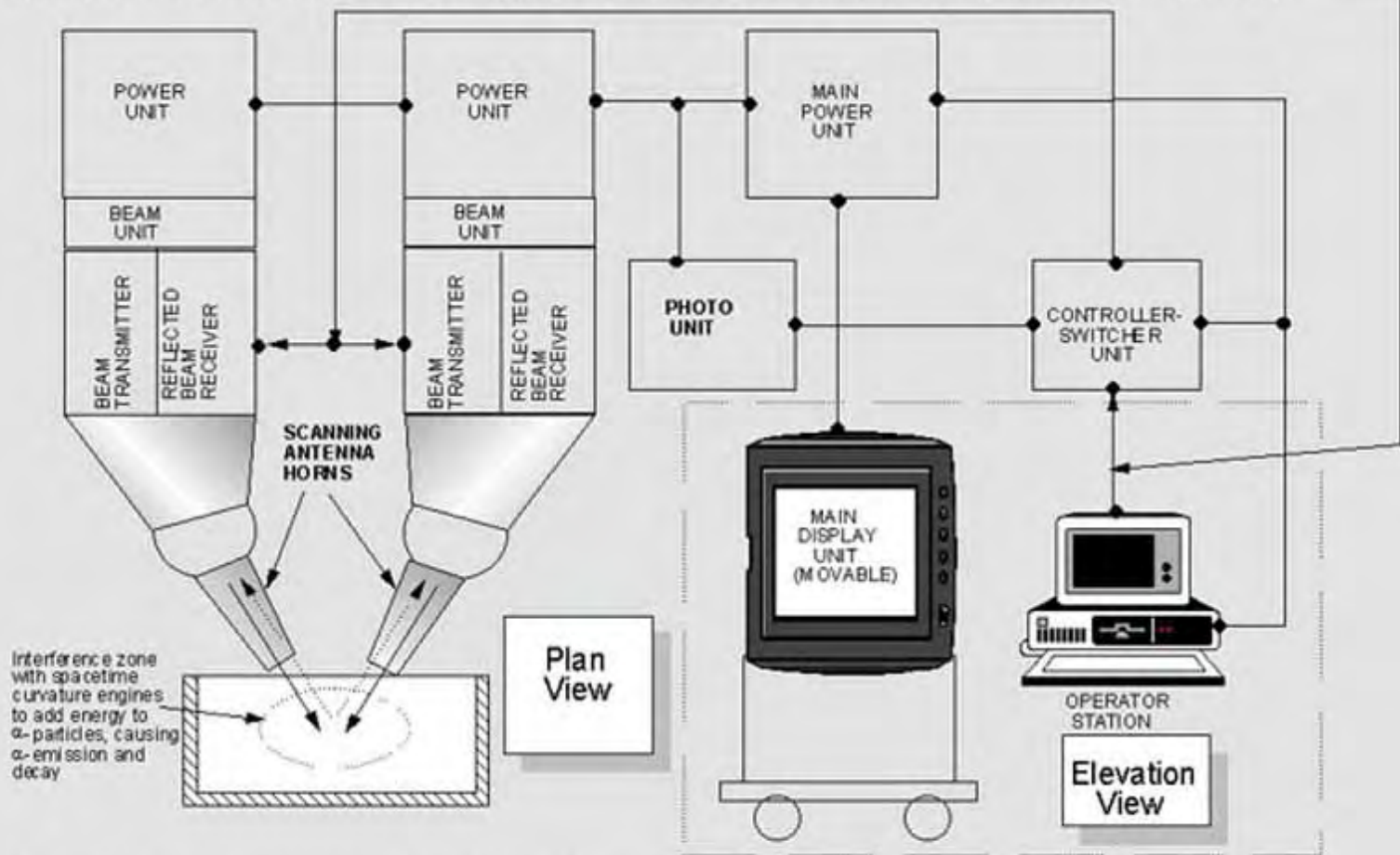
# **Soviets Easily Concealed These Superweapons for Four Decades**

- Intensive Soviet deception plan utilized
  - Embedded in other weapon system tests
  - Made to resemble natural acts, accidents, etc.
  - Open science releases coordinated to show Russian scientists worked on "normal" science
- West thought Russian scientists inferior
- U.S. scientific community was and is dogmatic, and fiercely suppresses real scientific innovation
- Terribly flawed electrodynamics not ruthlessly shaken and changed in West
- West had no basis for understanding energetics

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Precise spacetime curvature engine adds energy to  $2\text{He}4$   $\alpha$ -particles inside atomic nuclei, causing tunneling  $\alpha$ -decay

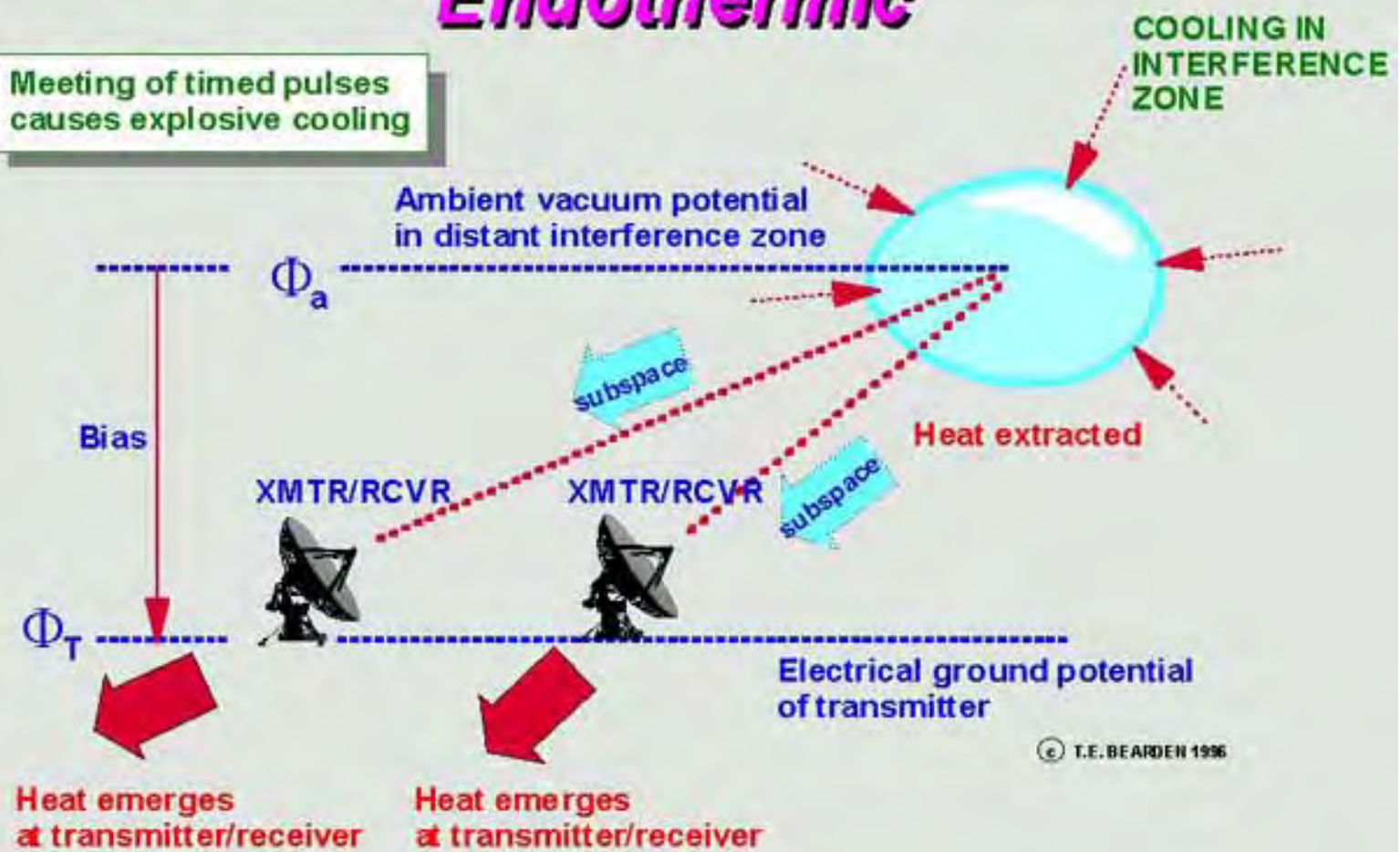


**Figure 26. Microscope-type, laser-like interferometer for inducing quick  $\alpha$ -decay in samples of otherwise longer-lived isotopes.**

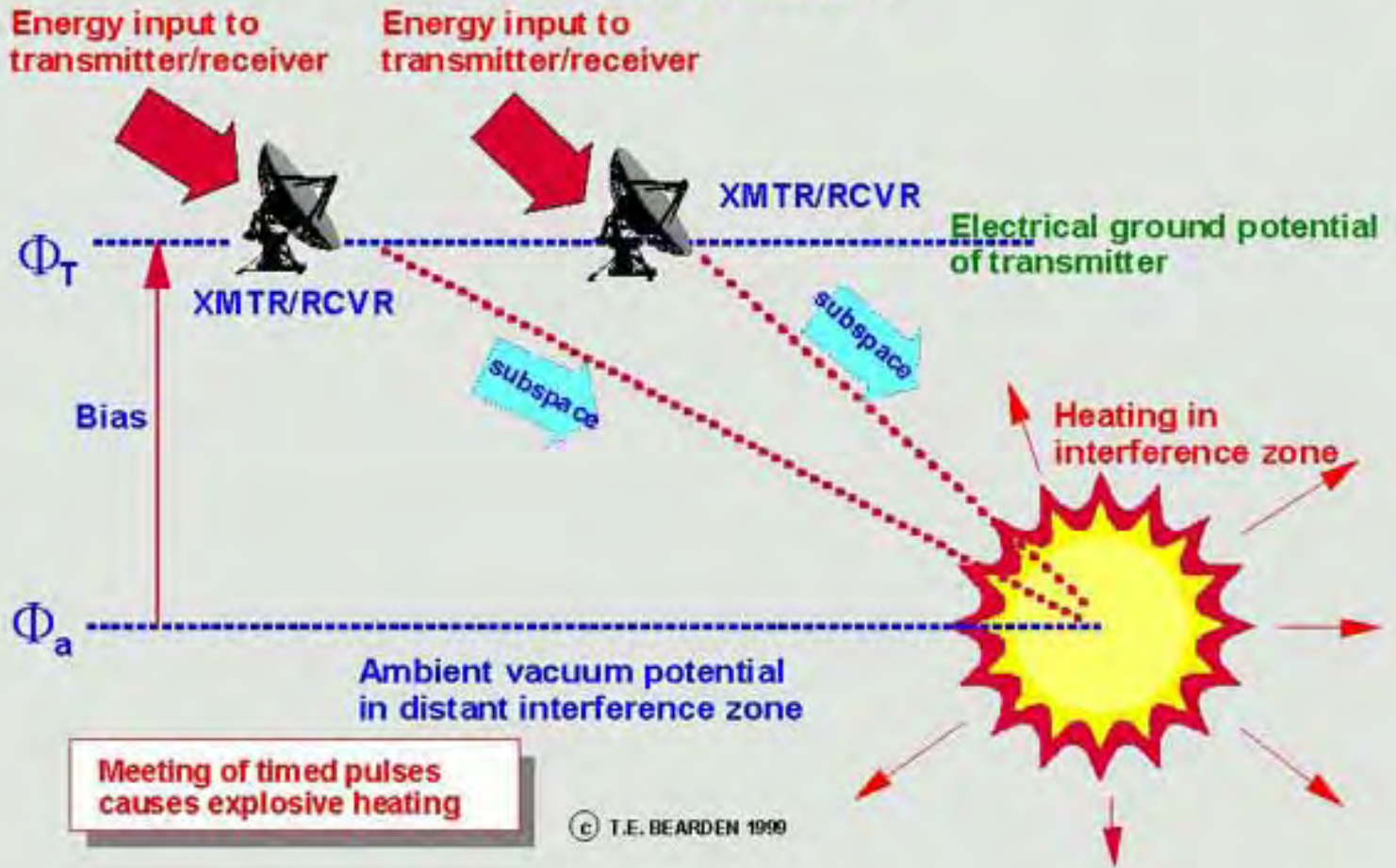
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# Longitudinal EM Wave Interferometry: Endothermic

Meeting of timed pulses  
causes explosive cooling



# Longitudinal EM Wave Interferometry: Exothermic





## U.S. Air Attack on Libya April 1986

---

- [Slide 1](#)
- [Slide 2](#)
- ["Washington Post" Article](#)  
January 22, 1989



# ***U.S. Airstrike on Libya April 1986\****



Mild quantum potential  
weapon tested against  
electronics in  
U.S. aircraft and missiles

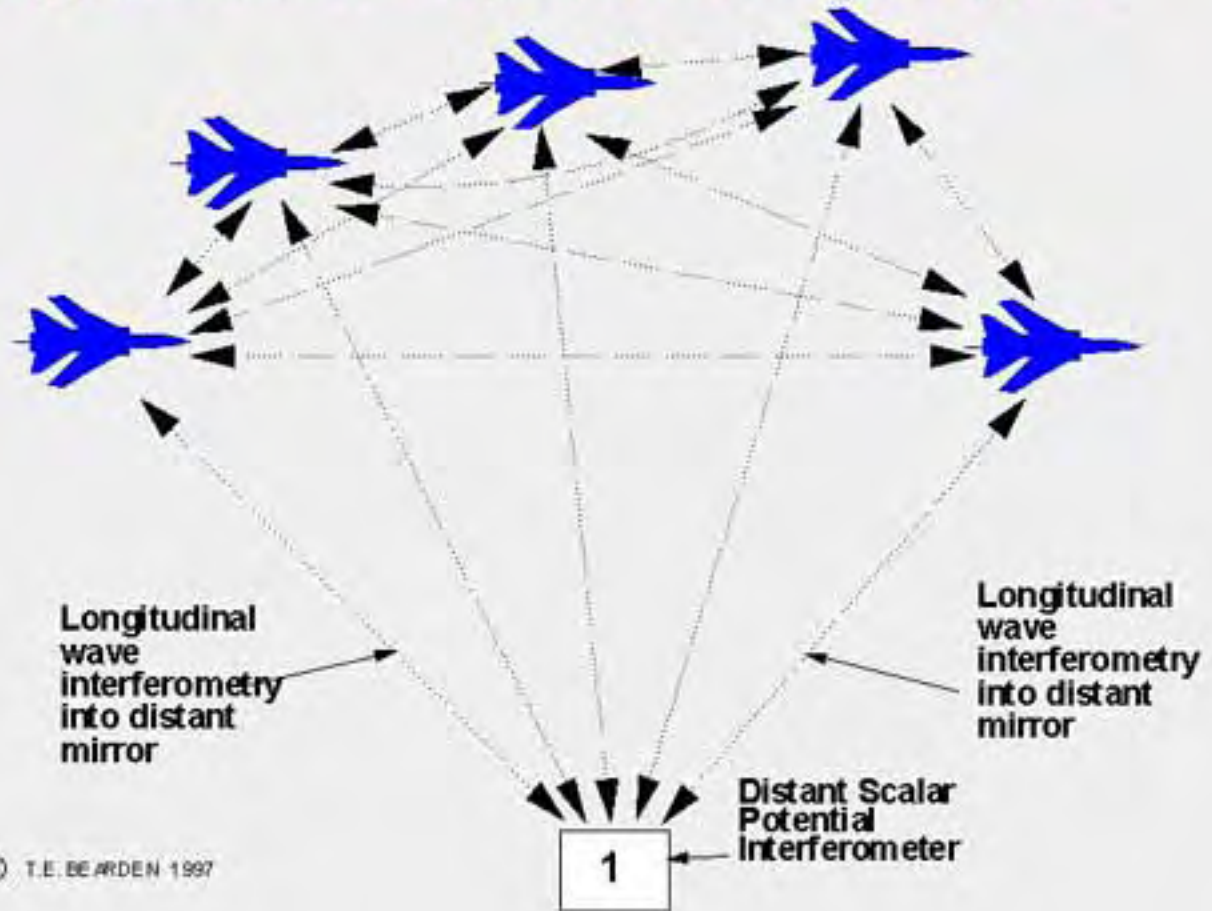
EM energy arises from every  
point in spacetime inside  
the electronics

- 33 U.S. AIRCRAFT IN STRIKE
- MANY HIGH-POWERED TRANSMITTERS
  - COMMUNICATIONS
  - JAMMERS
  - RADARS
- SEVERE, UNEXPECTED "EMI" ENCOUNTERED
  - ONE F-111 DOWNED
  - NUMEROUS WEAPONS WENT ASTRAY
  - THREE FOREIGN EMBASSIES DAMAGED
  - SEVEN AIRCRAFT FORCED TO ABORT
- COMMANDERS: "US OR THEM?"

*\*Washington Post, 22 Jan. 1989, p. A4.*

# ***U.S. Air Attack on Libya in April 1986***

- Established QP with the electronics in our aircraft and missile
- Subtly jammed them with spurious EMI noise and signals







# *Lightning Wall*



- **Aircraft on course of 270 degrees**
- **Approached "solid wall of lightning" in an otherwise cloudless sky**
  - From very high altitude to near the water
  - Extended north-south as far as one could see
- **Radar scope clear**
- *Rigged aircraft for heavy weather*
- *Plunged directly through wall*
- *Wall was very thin*



© T. E. BEARDEN 1996

circa 1959-1960

Interview with Patrol plane commander  
U.S. Navy P5 aircraft

Over Atlantic, 200 miles east of Norfolk



# **Lisitsyn's Report: Brain Code Broken**



- ★ **THEORY DEVELOPED AND FITTED**
- ★ **HYSTERESIS MEMORY LOOP**
- ★ **CONTROLLED EM INDUCTION**
  - **IMAGES**
  - **SENSATIONS**
  - **PREDETERMINED EMERGENCE**
- ★ **23 EEG BANDS**
  - **UP TO  $8.1 \times 10^{20}$  HZ**
  - **11 INDEPENDENT CHANNELS**

S.K. Lisitsyn, "New Approach to the Analysis of Electroencephalograms,"  
DDC Report AD73005, p. 16-25.

JCS-34

© 1979, 1985, 1991 T.E. HIGGINS



# Large Longitudinal EM Wave Interferometer (LWI) Accident

- 1958 nuclear explosion near Urals
  - Contaminated 1200 square kilometers
  - Signature of large LWI accident
  - Buried atomic wastes suddenly exploded
  - Region contaminated to this day
- Soviets were well along with advanced LWI prototypes and testing
  - In Jan. 1960 Khrushchev announced these forthcoming "fantastic" weapons
  - 1958 difficulties would have been resolved by 1960



© T.E. BEARDEN 1990, 1999





# Large Longitudinal EM Wave Interferometer (LWI) Accident

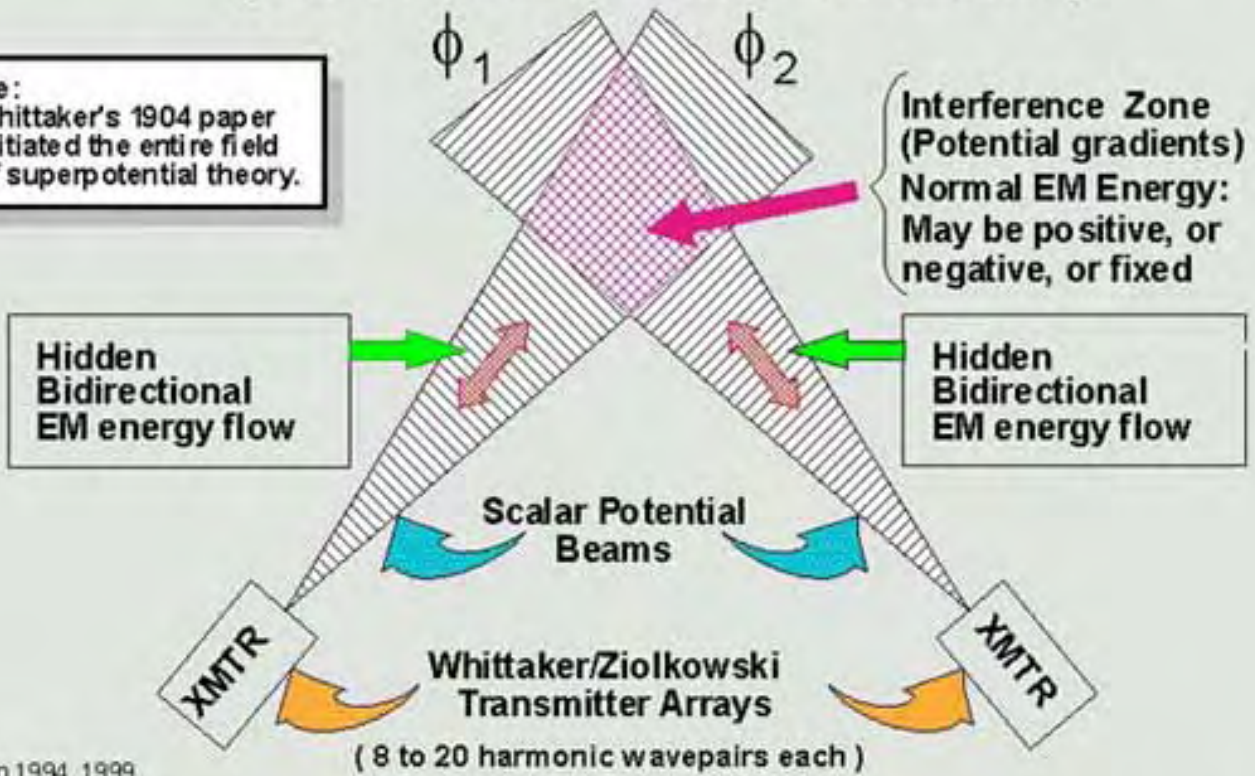
- Expected cause of 1958 accident
  - Huge LW energy beams built up
  - Catastrophic short-out in transmitter
  - LW energy flashed over into earth and spread
  - Struck and fissioned stored nuclear wastes
- Developed new safety circuits
  - For transmitter short-out, instantly activates to hold LW beam energy and prevent flash-over
  - Similar accident happened in 1986 at Chernobyl, except private U.S. group blew that transmitter to prevent catastrophic quake in California



© T.E. SEARDEN 1991 1899

## (Use of Hidden Information Content of the Field) (Can Provide Action-at-a-Distance)

Note:  
Whittaker's 1904 paper  
initiated the entire field  
of superpotential theory.



© T. E. Bearden 1994, 1999

**Figure 5. Scalar potential interferometry (between the two sets of bidirectional longitudinal EM wavepair functions) produces all EM force fields and waves.**





# Two Types of Mutual Assured Destruction (MAD) Systems

## ■ **Sane system:**

- Turned off or on standby
- Wait until attacked or attack is imminent
- Humans consider situation, make strike decision
- Command order issued to weapons officers
- Human finger initiates launch sequence
- Usually requires code entry, etc. for assured launch control



## ■ **Insane system:**

- Computer periodically (e.g., every 2 hours) initiates launch
- During sequence, there is a period (say, 2 min.) where operators can enter stop order (usually coded)
- If correct stop not entered, weapons automatically launch
- if correct stop entered, computer resets, and after another 2 hrs, automatically reinitiates the launch sequence



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# Psychoenergetics Weapons Teams Mentally Disable All Personnel

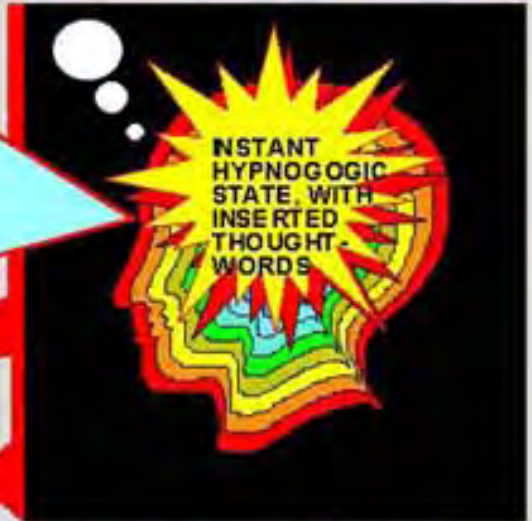


(COUNTERS ALL SANE MAD SYSTEMS)

(NULLIFIES HUMAN COMPONENT OF ALL WEAPON SYSTEMS)

ELECTRICAL  
THOUGHT-WORDS  
ARISE DIRECTLY  
IN BRAIN, HENCE  
IN MIND, BYPASSING  
SENSOR INPUTS

Effects arise in local spacetime,  
simultaneously in all minds in  
the targeted area



INSTANT  
HYPNOGOGIC  
STATE; WITH  
WAKING  
DREAM

TARGETED  
POPULACE

PERCEIVED  
REALITY  
NOW  
CONTROLLED

- Site personnel instantly hypnogogic and mentally controlled.
- Distant weapon controller teams coord crew actions
- Standdown insane weapons to maintenance standby.
- Mindsnapper then strikes, kills all personnel, and nullifies site for months.

*Indicators: Two A-10 incidents 1997, LIDA device since 1950s.*

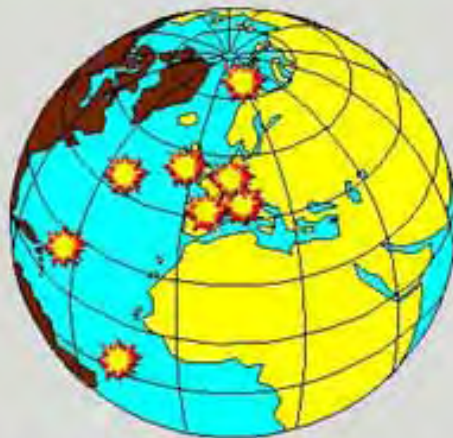
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# Strikes Against Special Ship and Energetics Weapon Sites



- Via powerful scalar EM pulses in each targeted area, so sharp time-jerks occur
  - Mind and its operations exist in time but not in 3-space
  - Coupling interaction of mind operations to body occurs through flow of time
  - Flow or change of flow of time must be smooth, for coupling of mind to body
- Sharp jerk in time flow snaps mind's coupling to body, instantly separates mind
- Instant death for every virus, bacterium, cell, insect, mammal, living creature
- Contaminates struck sites for months, perhaps a year



**Note:** In other words, this is the part of the "preparation barrage" that attacks the enemy's response capability (i.e., his "artillery" and his "airpower") and suppresses it. The use of the "mindsnapper" weapons provides 100% assurance of success.

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# "MINDSNAPPER" ATTACK ON SPECIAL SHIPS & ENERGETICS WEAPONS SITES

"We have a new, fantastic weapon ... so powerful that, if unrestrainedly used, it could wipe out all life on earth."

Khrushchev,  
speaking to Presidium,  
Jan. 1960

XMTR

XMTR

© 1998 T.E. BEARDEN

POWERFUL  
SCALAR EM  
BURSTS

POWERFUL  
SCALAR EM  
BURSTS

POWERFUL  
SCALAR EM  
BURSTS

TARGETED  
AREAS



- Minds snapped loose from bodies (every living thing)
- Struck areas completely sterilized of all life
- LWs emitted; slow decay of time-charge makes contamination persistent
- Tested twice in Afghanistan



## How Much Off Guard Are We?

---

- [Slide 1](#)
- [Slide 2](#)
- [Slide 3](#)
- [Slide 4](#)
- [Slide 5](#)
- [Slide 6](#)
- [Slide 7](#)

# ***How Much Off Guard Are We?***

---

- ***Legitimate U.S. forces have no energetics weapons or defenses against them***
- ***No DoD general, military officer, or enlisted person reporting to the government of the United States has any:***
  - ***Training in energetics or energetics weapons***
  - ***Experience in energetics or energetics weapons development and usage***
  - ***Training in strategy, tactics, deployment, and employment of energetics weapons***
  - ***Knowledge of energetics weapons effects and capabilities***
  - ***Knowledge of the energetics weapons, tactics, deployment, and employment by the KGB/Russians***
- ***Civilian and military, scientific and intelligence, and news media personnel do not recognize energetics weapons effects happening right over their own heads***

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# How Much Off Guard Are We?

- Kill of U.S.S. Thresher in 1963 not recognized. Left signatures.
- 23 years of KGB weather engineering, particularly over U.S. and North America, ignored and not recognized.
- Decades of irradiation of U.S. Embassy, fatally injuring three U.S. Ambassadors, health changes in personnel shrugged off ineptly.
- Massive building of underground sites, all through former Soviet Union, lamely speculated as perhaps "ABM" system or?.
- 1985, 1986 Soviet kills of U.S. aircraft, spacecraft, personnel ignored as "accidents" by legitimate U.S. communities.
- Quantum potential strike on soldiers in Gulf war ignored.
- Quantum potential deterioration of U.S. populace's immune systems ignored.
- Exchange of earthquakes and massive retaliatory destruction of Soviet missile ammunition storage sites, 1986-1989, ignored.
- U.S. scientific and military communities adamantly refuse to rework electromagnetics, though known to be seriously flawed.
- Refuse to apply Stoney/Whittaker work to engineer hidden variables, even though present quantum mechanics also known to be wrong because it does not contain such "hidden order." © 1996, 1999 T.E. BEARDEN
- Refuse to develop, structure, and apply Bohm's quantum potential, for instantaneous action at a distance. Russians developed it.

# *How Much Off Guard Are We?*

- **Kill of U.S.S. Thresher in 1963**
  - Not recognized.
  - Left signatures.
- **23 years of KGB weather engineering**
  - Particularly over U.S. and North America
  - ignored and not recognized.
- **Decades of microwave irradiation of U.S. Embassy**
  - Fatally injured three U.S. Ambassadors
  - Induced health changes in personnel
  - Shrugged off ineptly.
- **Massive building of underground sites**
  - All through former Soviet Union
  - Lamely speculated as perhaps "ABM" system or?.

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# *How Much Off Guard Are We?*

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---

- **U.S. scientific and military communities adamantly refuse to rework electromagnetics, though known to be seriously flawed.**
- **Refuse to apply Stoney/Whittaker work to engineer hidden variables, even though present quantum mechanics also known to be wrong because it does not contain such "hidden order."**
- **Refuse to develop, internally structure, and apply Bohm's quantum potential, which gives instantaneous action at a distance and great energy amplification.**
- **Russians developed quantum potential weapons, which obsolete all other weapons.**

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## JUST HOW MUCH OFF GUARD ARE WE?



Kill of  
TWA-800  
1996

Kill of  
USS  
Thresher  
1963

Cold  
Explosion  
Off Japan  
Apr 1984


Kill of  
Space  
Shuttle  
Challenger  
1986

From The Huntsville (AL) Times 18 Sep 96:

President's  
party  
airplane  
crash  
1996

"Retired Gen. Wayne Downing concluded that U.S. forces are so far superior to potential foes that opponents have turned to terrorism as the only way of challenging them." The Times also provided the information that Defense Secretary William Perry agreed with Gen. Downing's conclusion.

3 Dead U.S.  
Ambassadors  
from Moscow  
Embassy  
Radiation

- 
- QP Gulf War Syndrome: 16,000 persons disabled
  - QP jamming, U.S. air attack on Libya, 1996

Kill of  
Arrow DC-8  
Gander AFB  
Dec 1985

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# JUST HOW MUCH OFF GUARD ARE WE?

3 Dead U.S.  
Ambassadors,  
U.S. Weather  
Engineered  
20 years

Kill of USS  
Thresher  
Nuclear  
Submarine  
Apr 1963

QP Test on  
U.S. Troops  
in Persian  
Gulf, 1991  
(Gulf War  
Syndrome)

TWA-800  
1996;  
President's  
C-130  
crash 1996

Arrow DC-8  
Gander AFB  
Dec 1985  
Challenger  
1986

Quantum  
Potential  
Jamming of  
Air Attack on  
Libya  
Apr 1986

## Blind Euphoria to Even the Ballistic Missile Threat

- U.S. National Intelligence Estimate (NIE) released in Nov. 1996 states there is no foreseeable threat to the U.S. from "indigenous missiles" for at least 15 years.
- Clinton has claimed a program for ABM defense is too expensive, would violate ABM Treaty with former USSR.
- Soviets developed an ABM system in violation of the treaty.
- In June 96 Russia test-launched an SS-19, their 26th ICBM test in 5 years.
- *"Russia still retains and is modernizing a vast nuclear arsenal... still the only nation of earth that could destroy America in a matter of minutes. Indeed, given the weakness of the Russian Army, Russia's superpower ambitions rest more than ever on its nuclear capabilities."* \*
- *"For the first time since the dawn of the nuclear age, there is not a single Russian missile pointed at America's children."* \*\*

Comment: *Punch a computer button and the missiles are pointed! The armed missiles are still there, ready and waiting.*

Bulleted info courtesy Washington Inquirer, June 24, 1996.

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\* House Nat'l Security Chmn, Floyd Spence.

\*\* Bill Clinton, State of the Union Message.



# Possible Targets: 1995-9 Escalation Phase

(Based on 1985-87 test program)



Earthquakes



Missiles



Power Grids &  
Distribution Systems



Ships



Shuttle  
Launches  
& Flights



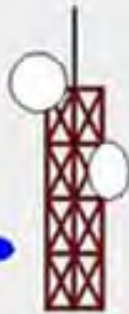
JETLINERS



Communications  
and Computer Nets



Radars &  
Nets



Microwave Nets



Radio/TV



Subs



Satellites

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# Propagation of Weapon Effects

- **All conventional weapons use propagation through 3-space of matter or energy or both**
  - Matter (bombs, missiles, projectiles, etc.)
  - Energy (EM force fields, sonic force fields, etc.)
  - Basically one-to-one, or one "bus" to many-on-many
  - Finite propagation velocity  $v$ : where  $0 < v \leq c$
  - Time delay: Shielding and pre-strike retaliation possible
- **Structured quantum potential propagates vacuum ordering (vacuum engines), instantly**
  - Zero time delay (through multiply-connected spacetime)
  - No propagation "through space", no "velocity" as such
  - Easily one-to-many, without limit
  - Dramatic energy amplifier (gates, amplifies flux ordering)
  - Effects arise in local spacetime; no shielding possible
  - No range limit, since striking distance always zero
- **QP weapons obsolete all other weapons**

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# Yugoslav Earthquake, Followed by Cold Explosion

Apr. 15  
1979

- Magnitude 7.2 on Richter scale
- Epicenter 33 km. deep
- More than 100 aftershocks
- At Kamenari:
  - ▶ Adriatic sea mushroomed up
  - ▶ Like atomic bomb explosion
  - ▶ Signature of a cold explosion
  - ▶ Similar to Apr. 1984 test off coast of Japan, near Kurils (see inset graphics)
- Note that April is a significant test month for the Communists (preparing official reports for May Day?)



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# COUNTERING AN INSANE QP WEAPON:

*Quantum Potential Psychoenergetics  
Strike Mentally Controls All Personnel*

CONTROLLED PERSONNEL DISABLE INSANE QP SYSTEM  
(FOLLOWED BY PERSONNEL KILL OF ENTIRE CADRE BY MINDSNAPPER)



ELECTRICAL  
DREAMTHINKING  
ARISES DIRECTLY  
IN BRAIN, HENCE  
IN MIND, BYPASSING  
SENSOR INPUTS

Effects arise in local spacetime,  
simultaneously in all minds in  
the targeted area

© 1996 T.E. SDA/EDCH



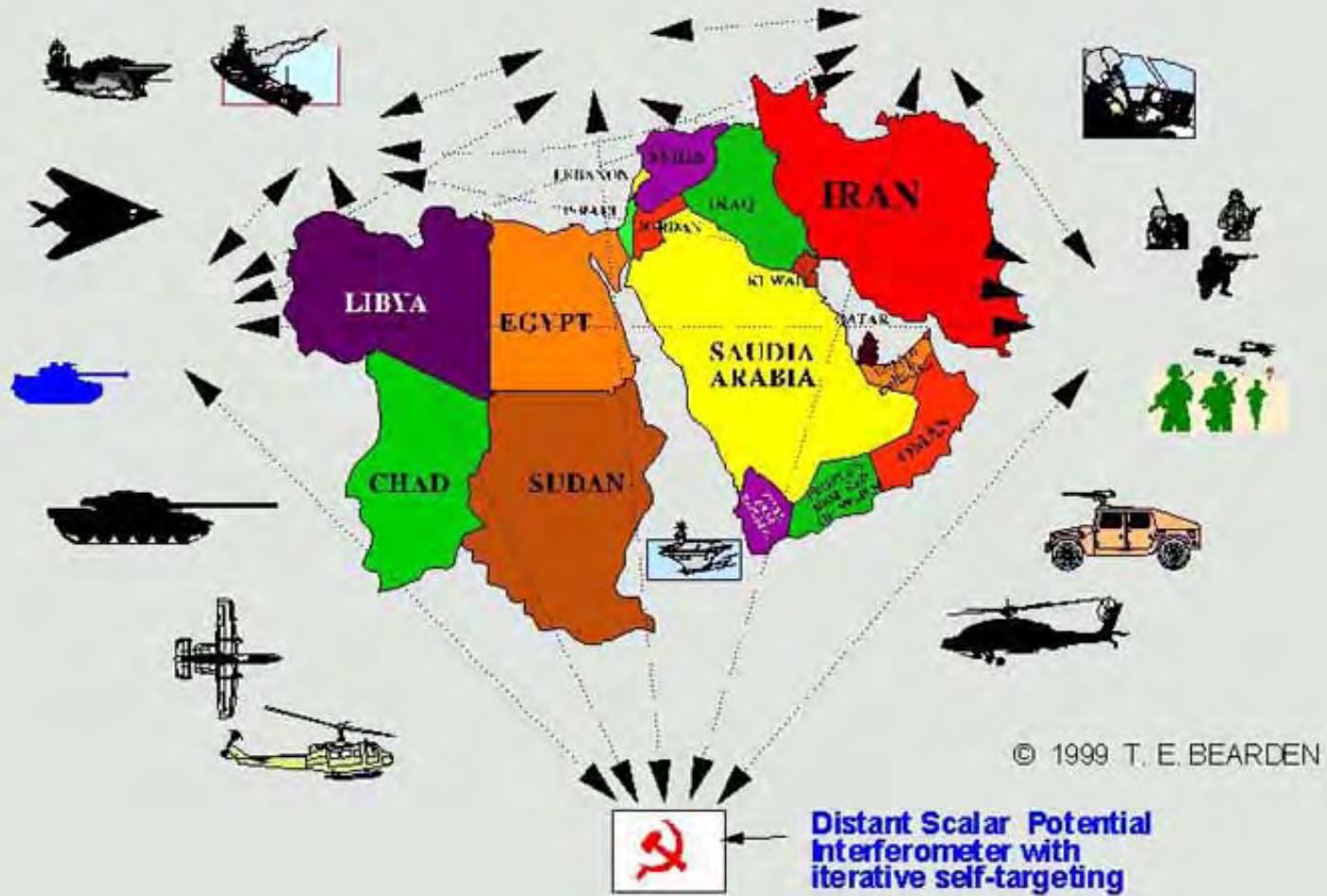
TARGETED  
CADRES



MINDS ARE INSTANTLY PLACED  
INTO WAKING-- BUT DEEP --  
HYPNOGOGIC TRANCE  
STATE. INSERTED THOUGHTS  
ANALOGOUS TO HYPNOTIST.  
PERSONNEL FUNCTION IN AN  
ALTERED, COMPLETELY  
CONTROLLED PERCEIVED REALITY.

*Indicators: Captain Button's lengthy A-10 incident in 1997, LIDA device since 1950s.*

# ***Gulf War Disease: KGB QP Weapon Induced ST Curvature Engines for a Cocktail of Diseases***



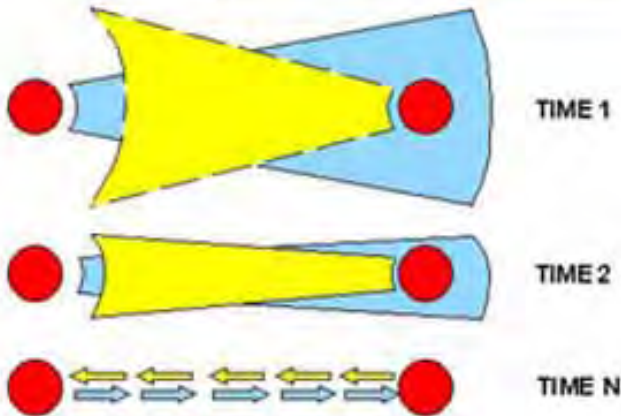




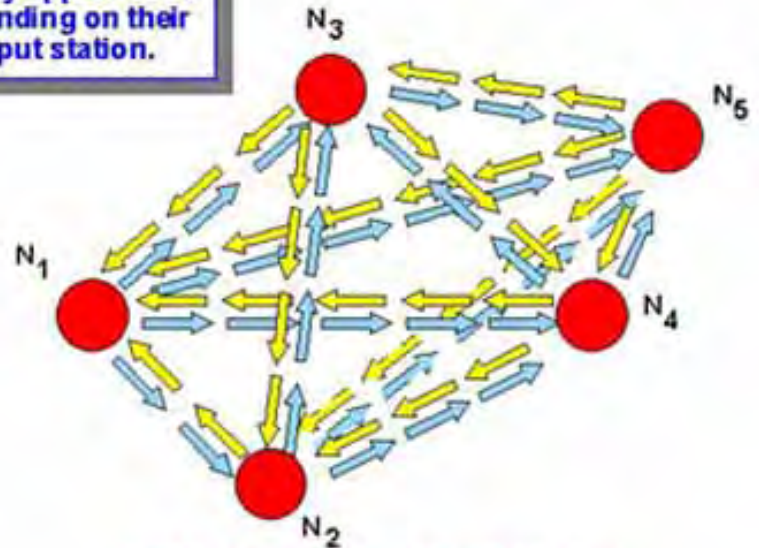
# Self-Targeting in Inner EM Channel Can Produce a Quantum Potential



Once QP is established, energy transmission is direct and instantaneous. Energy input to one single participant will simultaneously appear in all other participants, the amount depending on their fractions of participation with the input station.

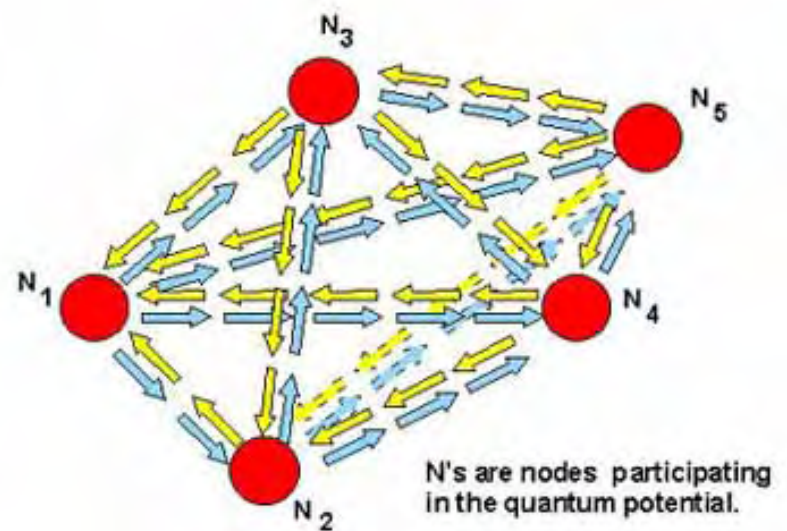
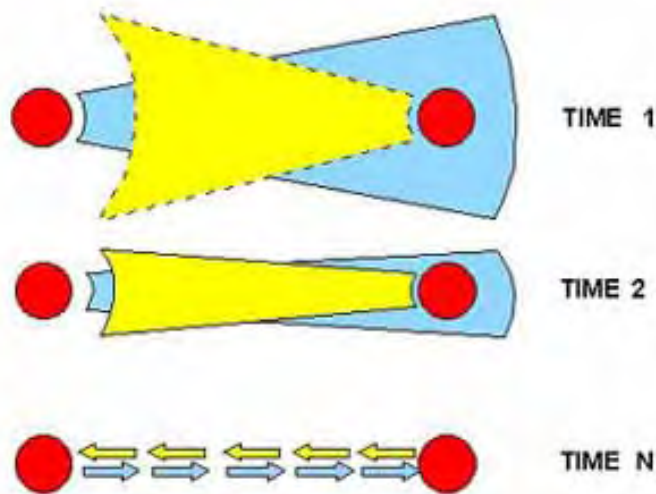


**NARROWING OF INTERACTING POTENTIALS INTO LASER-LIKE BEAMS, BETWEEN TWO PUMPED SOURCES. NOW ONLY LONGITUDINAL WAVES CONNECT THE LINKED OBJECTS.**



**SELF-TARGETING EFFECT AMONG ALL PAIRS OF INTERACTING PUMPED SOURCES**

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a. Iterative retroreflection between any pair of nodes narrows the interconnecting potentials to a laser-like, bidirectional beam. Iterative phase conjugate reflection provides self-targeting.

b. The quantum potential exists as narrow, laser-like beams between participating nodes, even when the nodes are widely separated. The beam space is multiply-connected; transmission is instantaneous.

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Consider the hidden Stoney/Whittaker bidirectional EM waves that comprise the potential from each source node. If these nodes have sufficient intersymmetry of dynamic material form, then self-targeting occurs between the two nodes of any nodal pair. By iterative phase conjugate reflection, the scattering is narrowed into interconnecting wavepairs, in laser-like beams, between each two nodes. Thus the interconnecting potentials narrow into laser-like, bidirectional beams. The Coulomb gauge may apply, and a quantum potential may be formed.

**Figure 30. Mechanism for generating a quantum potential, by iterative self-targeting induced into a system of multiple scattering nodes. Once a QP is established, spatial separation has little or no effect.**





# Major Principles for Use of Quantum Potential Weapons



- **Must disable dead-man fuzing prior to massive use of scalar interferometry weapons.**
- **Must assure immediate, complete nullification of unique enemy assets (quantum potential assets, special ships, and energetics weapons).**
- **Personnel can be destroyed instantly with mindsnapping; area is sterilized of life, and effect persists, gradually dying away.**
- **Personnel can be disabled instantly with various psychoenergetic weapons; area not sterilized.**
- **Personnel can be destroyed in short order by using EM BW weapons; area not sterilized.**
- **If foe has energetics weapons, then it is a quick-draw "gunslinger" contest unless insane MAD systems deployed.**
- **Complete surprise is of decisive importance.**
- **Tailor effect used to specific target, objective.**
- **Note: Must use "insane" MAD systems to deter.**



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# Quantum Potential Weapons: Major Principles (Continued)

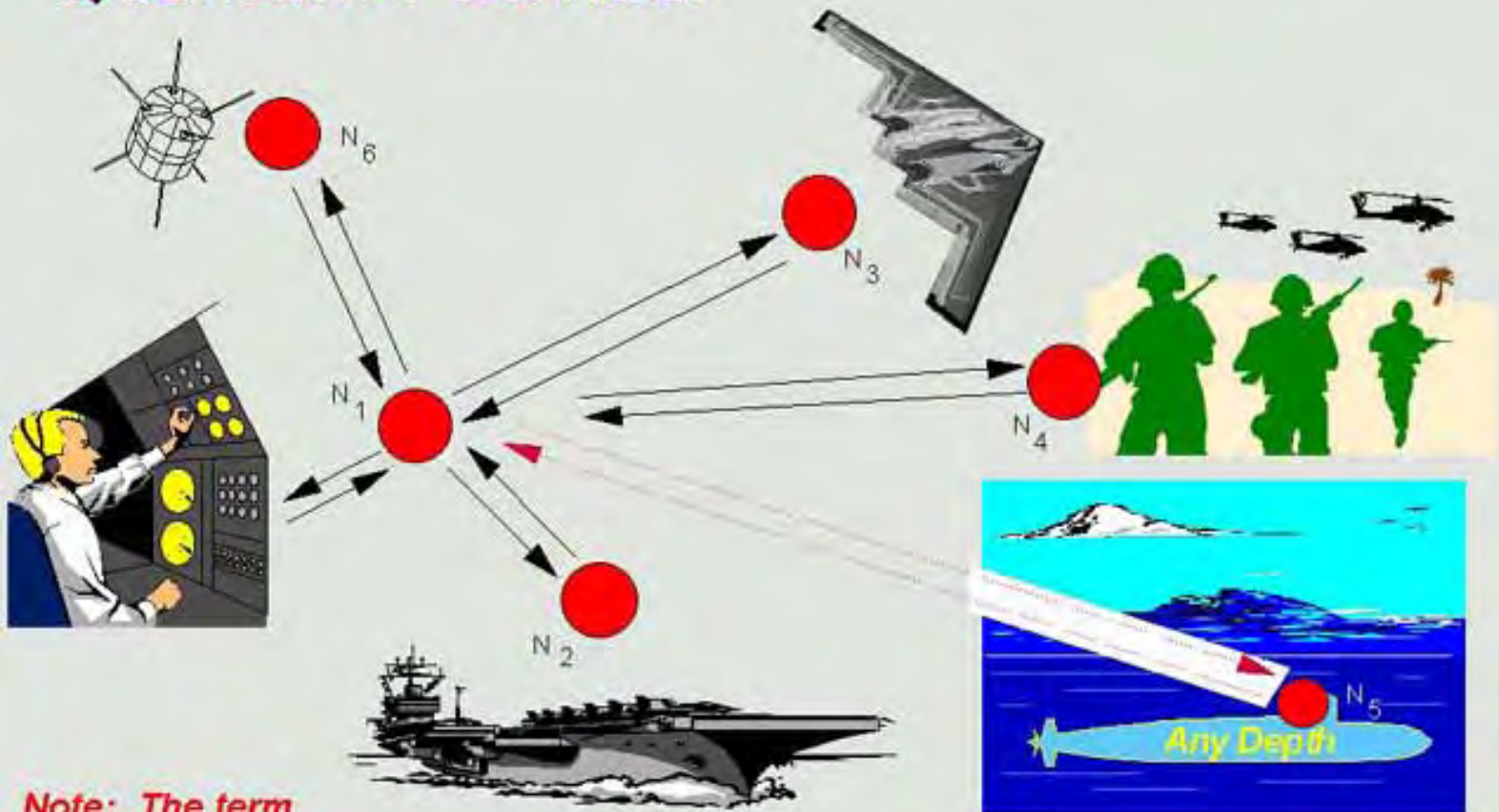


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- Three major classes of use exist:
  - Use of bulk energy only (as in bulk heating or cooling) without substructuring
  - Use of internal structuring of the bulk energy, so that vacuum engines appear in target
  - Use of more deeply nested engines allows direct intervention in mind, long term memory, perception, thoughts, emotions, personality
- Use of vacuum engines allows engineering at a distance of:
  - Atomic nuclei including structures, reactions, and transmutations
  - Bulk matter including translations, lattice bonding, chemistry, chemical interactions, electromagnetic interactions
  - Deep biological control systems such as
    - ▶ Becker's cellular control (recovery) system
    - ▶ Popp's cellular control system
  - Cells including:
    - ▶ Structuring, differentiation and dedifferentiation
    - ▶ Genetic changes, chemical changes
    - ▶ Induction of disease states without normal disease vectors
  - Mind/matter interface, including long-term memory, perception, emotion, thought, mental state



# Instantaneous Communication by a Quantum Potential



**Note: The term "quantum potential" is used in an extended sense.**

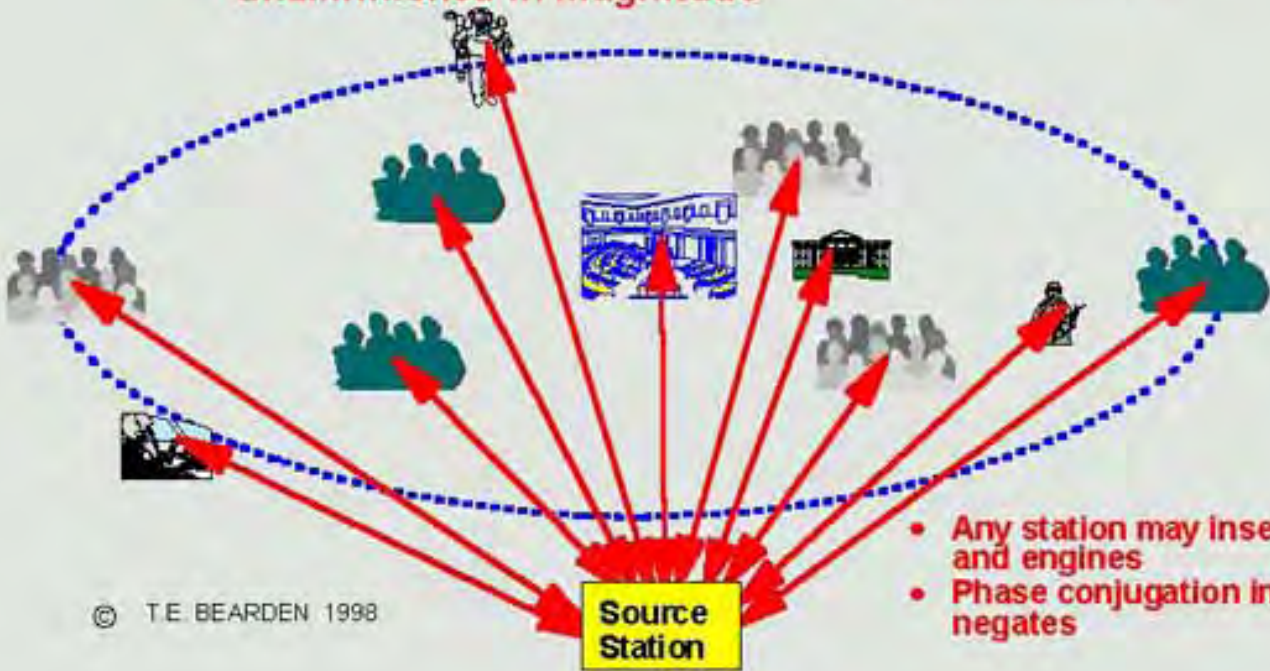
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Selected clipart © by Lotus SmartPics™



# Participants in a quantum potential share a common multiply-connected spacetime (MCST)

- Separated points are superposed in MCST
- Connection is instant and bidirectional
- Propagation through ST does not apply
- Energy or vacuum engine input to one station instantly appears at each and every other station, undiminished in magnitude



- Any station may insert energy and engines
- Phase conjugation insertion negates

# Quake in Tangshan, China

28 July, 1976

- **7.8 on Richter scale**
- **Hundreds of thousands killed**
- **Accompanied by extensive light, electrical effects**
  - **Starting 3 to 5 days before**
  - **Communications interference within 250 km**
  - **Sky lighting observed**
- **[Personal comments]**

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# Counting Rifles: Put up or shut up!

*(Exchanging Earthquakes)*



## *Opening bet*

- |            |           |
|------------|-----------|
| - Quebec   | 25 Nov 88 |
| - Pasadena | 3 Dec 88  |

## *Raise you*

- |           |          |
|-----------|----------|
| - Armenia | 7 Dec 88 |
|-----------|----------|

## *Call - what do you have?*

- |          |           |
|----------|-----------|
| - Malibu | 18 Jan 89 |
|----------|-----------|

## *Four aces*

- |                       |           |
|-----------------------|-----------|
| - Soviet Central Asia | 23 Jan 89 |
|-----------------------|-----------|

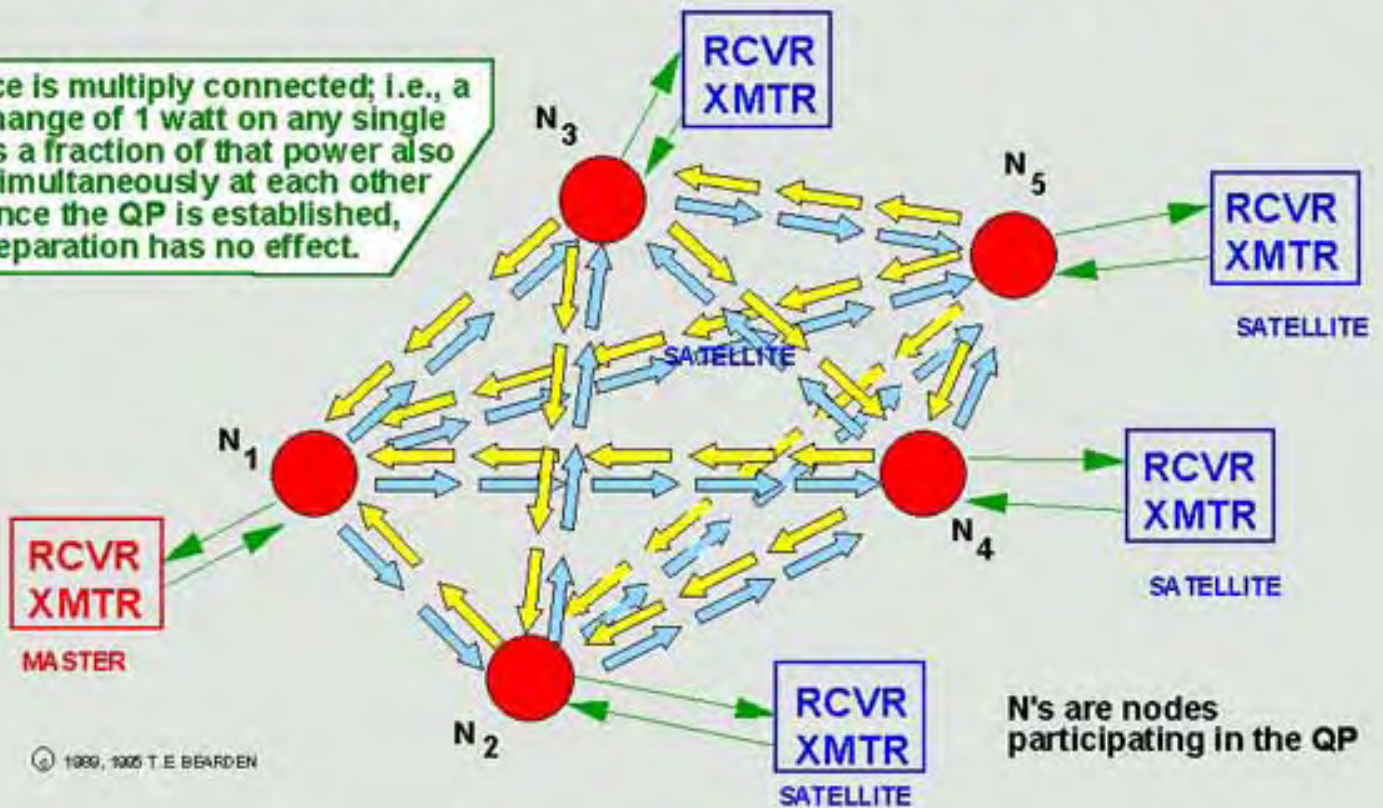
## *Clear table (stress relief)*

- |                     |         |
|---------------------|---------|
| - Bakersfield et al | various |
|---------------------|---------|

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# Instant Communication by a Quantum Potential

The space is multiply connected; i.e., a power change of 1 watt on any single node has a fraction of that power also appear simultaneously at each other node. Once the QP is established, spatial separation has no effect.



# Westerners Do Not React to Slow Threats



BOA CONSTRICTOR



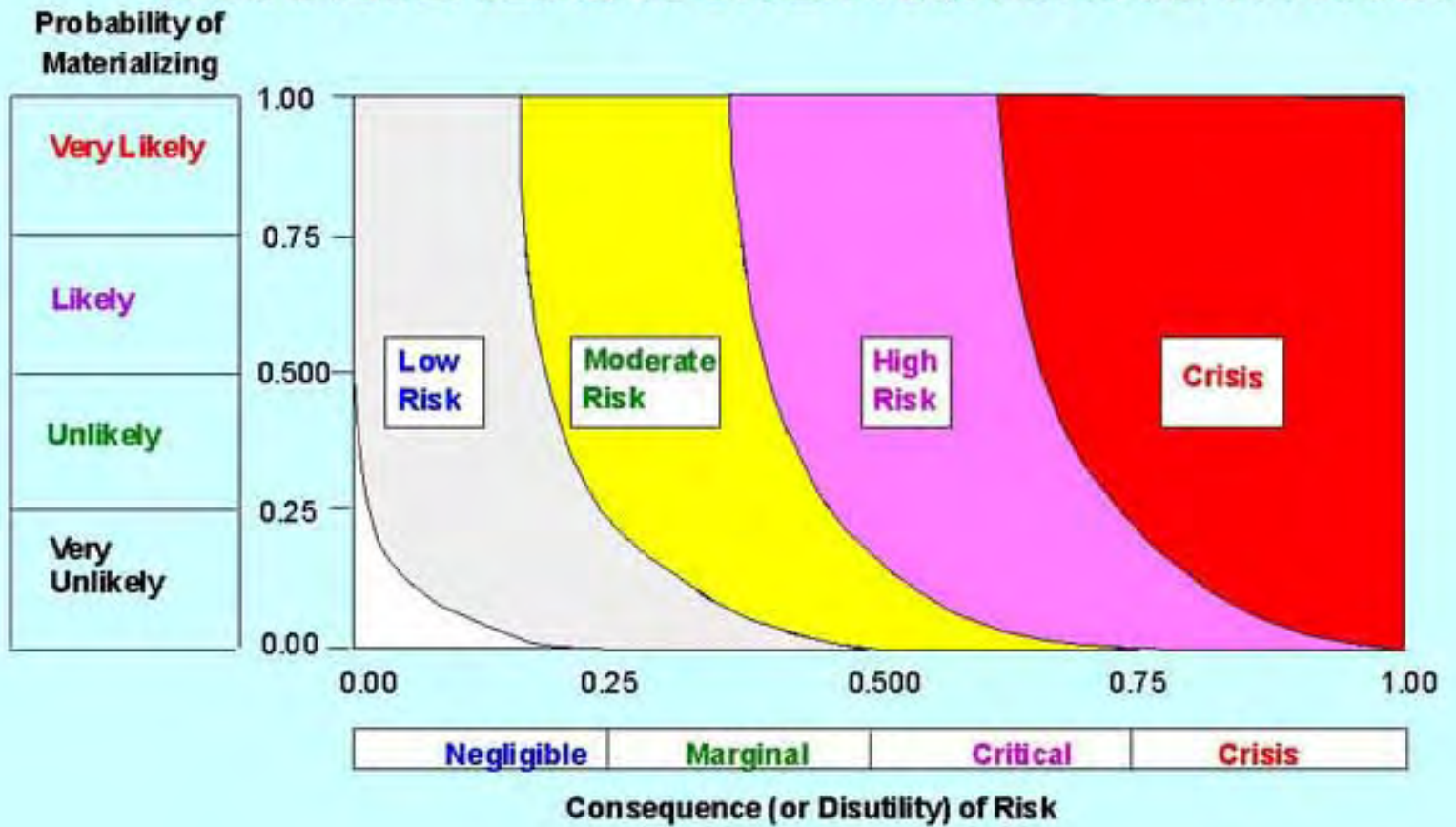
LIGHTNING STRIKE

Westerners tend not to react to slowly increasing things,  
but react to rapidly increasing things.

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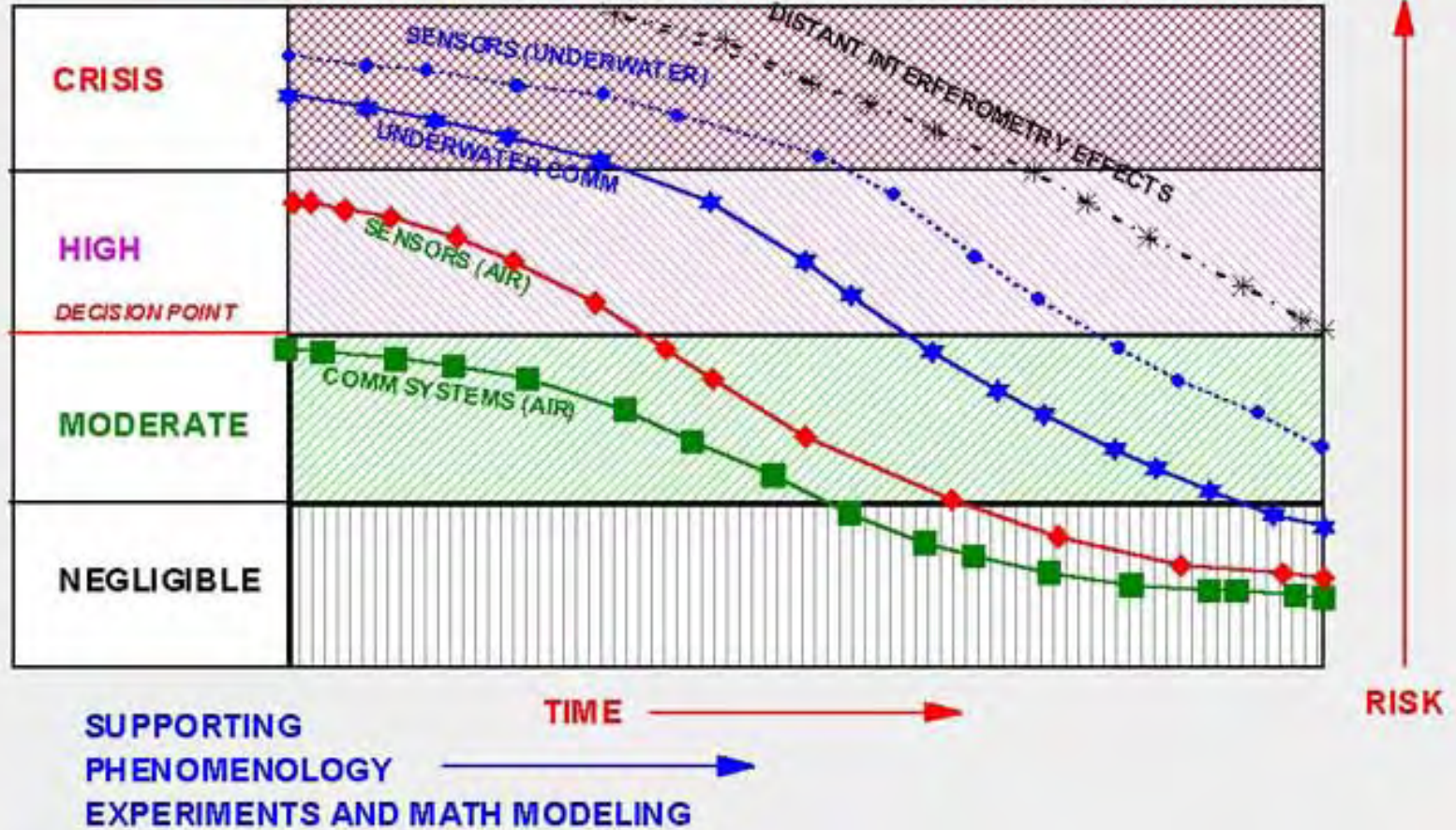


## CHARACTERIZING A GIVEN RISK OR RISK FACTOR



# TECHNICAL RISK MANAGEMENT

**SUPPORT RESEARCH IS TECHNICAL RISK REDUCTION  
AND MANDATORY FOR ANY EMERGING TECHNOLOGY**





# Aum Shinrikyo's Sarin Facility

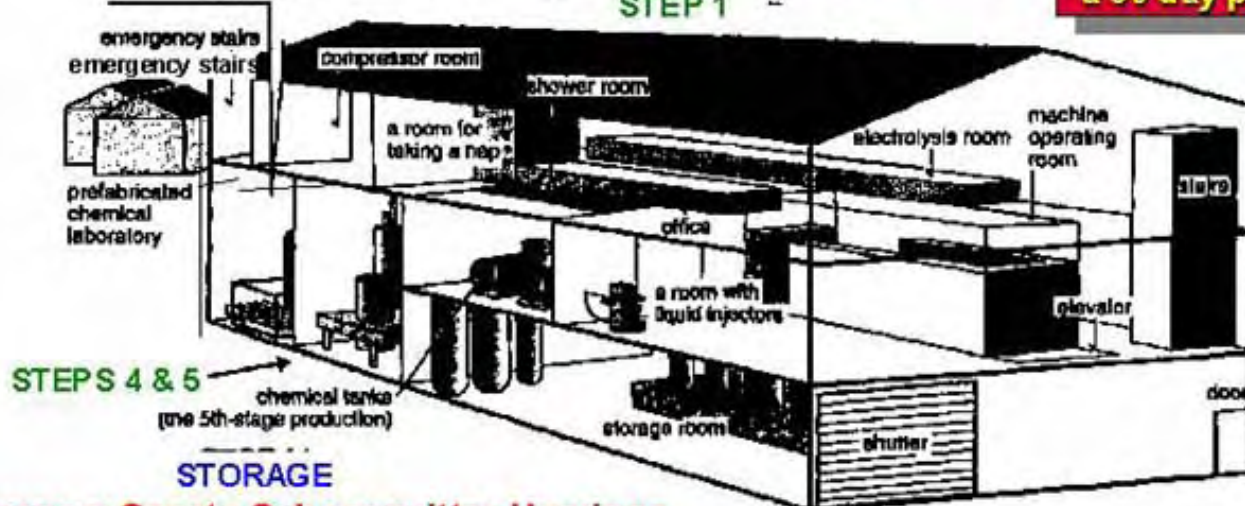
The interior of Satian No. 7, a suspected sarin production plant

Chemical plant (the first four stages for production)



SOLVENT RECOVERY

**NOTE: Group was preparing to produce 70 tons of sarin in a 30 day period.**



Reference: Senate Subcommittee Hearings

# ***In Scalar Beam Interference Zone***

- De-phasing of wave/antiwave pairs occurs
- Zero-summation destroyed
- Ordinary EM reappears [Whittaker 1904]
- Ordinary energy appears or disappears (i.e., may produce heating or cooling)
- Energy bottle effect
- Can add or extract EM energy
- Can produce specific ST curvature engines

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# **Physicist Schappeller Auralaz Munster, Austria:**



- **British Intelligence interview, about 1948**
  - **Used Kaluza-Klein theory**
  - **Worked with Russians**
- **Schappeller claimed he could:**
  - **Cause "implosions" rather than explosions**
  - **Use gravitational and electromagnetic energy**
  - **Cause large areas of the ocean to freeze**
  - **Tap earth-ionospheric field**
  - **Produce enormous energy**
- ***This is precisely what Hellman worked on in the USSR, after WW II!***

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# *Initial Soviet Plan for Cold War, After WW II*



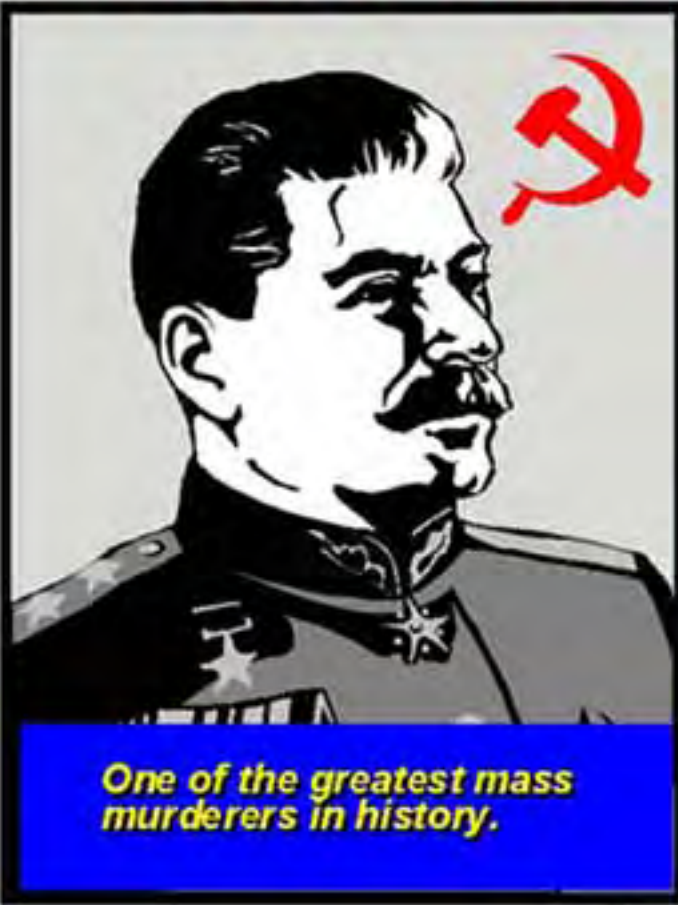
- **Develop and deploy SAM bomber defense**
- **Catch up in atomic weapons**
- **Master and apply rocketry**
- **Wed atomic warheads to rockets**
- **Initiate "Cold" War**
  - Bleed the dragon
  - Guerrilla wars
  - Terrorism
  - Insurgencies
- ***Find, develop, and weaponize next great technical breakthrough area as highest national priority***



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# Josef Stalin: Absolute Dictator



- ★ Secret police and spies everywhere
- ★ Purged his own officer corps
- ★ Always deeply suspicious
- ★ Regularly purged his enemies or those perceived to be shaky or untrustworthy
- ★ Absolute power, justice had nothing to do with it
- ★ Opponents often just disappeared in the night, never to be seen again
- ★ Secret police often tortured, killed them
- ★ Others sent to slave labor camps to die by severe work, starvation, and beatings or downright massacre
- ★ Had experienced unusual abilities of Wolf Messing, so knew that some persons could do unusual things
- ★ Forced Soviet weapon physics into this psychoenergetics realm also



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## Exploding any Resistance by Operational Scientists

Josef Stalin



**The Communists slaughtered  
20 million Russian Kulaks to  
collectivize Soviet farming**



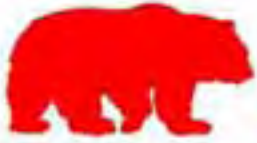
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Assembled Academy

**"The destiny of communism has been frustrated by the U.S. development of the atomic bomb. That is not the last great technical breakthrough. The next one WILL be Soviet! You will provide me with that great new technical breakthrough at all speed, or I will have your heads. Do I make myself clear, comrades?"**





# Significant Soviet Statements



- "In the final revolution, it does not matter if three-quarters of the earth is destroyed, so long as the other quarter emerges communist." *[Lenin]*
- "If a means of total neutralization of foreign missiles is to be found, it can only come from a group of new principles in physics, called energetics." *[Nobelian Petr Kapitsa, to Nikita Khrushchev, in answer to Khrushchev's demand for a 100% method of defense against long range missile attack.]*
- "We will bury you." *[Khrushchev, to Nixon, Kitchen Debate]*
- "We have a new weapon, just within the portfolio of our scientists, so to speak, which is so powerful that, if unrestrainedly used, it could wipe out all life on earth. It is a fantastic weapon." *[Khrushchev, speaking to the Presidium, Jan. 1960]*

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# CAPTAIN SVOBODA DIVES HEADLONG TO HER DEATH

COMPANION A-10s

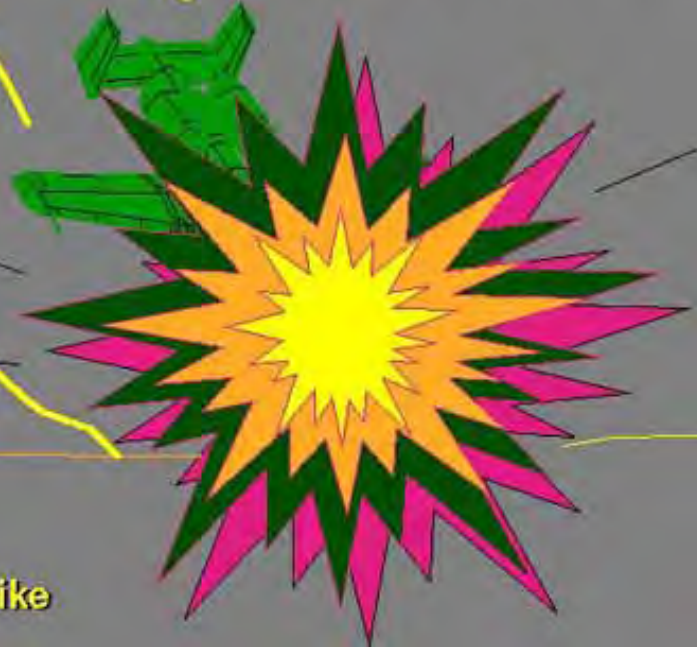


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CAPTAIN AMY SVOBODA

- Night training mission May 27, 1997
- From same wing as Captain Button
- This was a second psychoenergetics strike



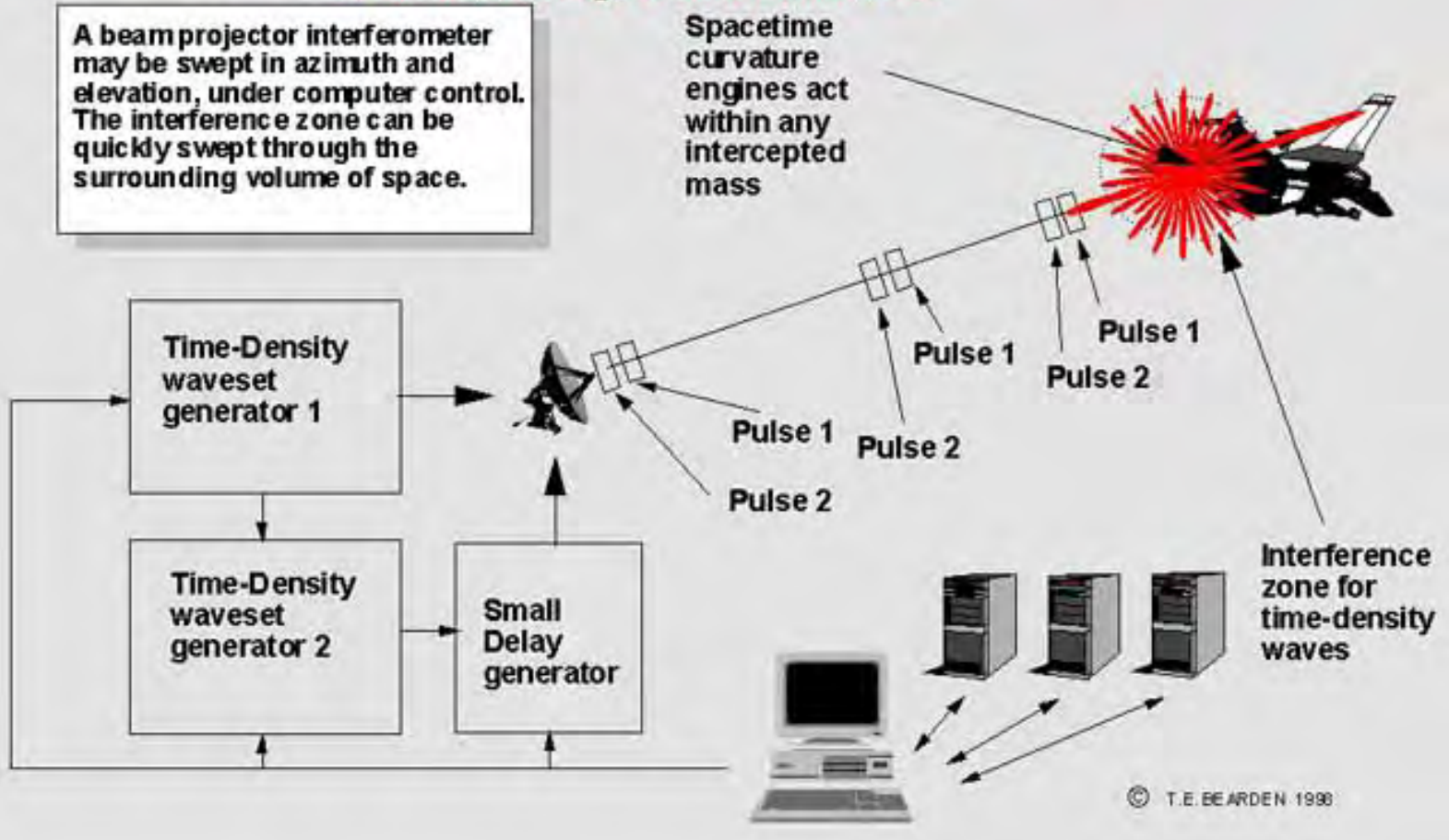


# T-Polarized Beam Projector

***For Intercepting and Changing Distant Masses  
at Various Angles and Distances***

A beam projector interferometer may be swept in azimuth and elevation, under computer control. The interference zone can be quickly swept through the surrounding volume of space.

Spacetime curvature engines act within any intercepted mass







## ***Possible Tests (1)***



- **1958 nuclear accident in Urals**
- **Disease induction in U.S. Embassy personnel in Moscow**
- **Siberian disease/death transmission experiments**
- **Destruction of USS Thresher nuclear submarine, Apr. 10, 1963**
- **Nuclear explosion transmitted into ocean underwater, 100 miles north of Puerto Rico, Apr. 11, 1963**

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## Possible Tests (2)



- Eight F-111's downed in Vietnam immediately after deployment
- Several large earthquakes
- Mysterious aircraft losses in groupings
- Numerous underground "nuclear" tests
- Nuclear tests at Semipalatinsk without associated seismic activity
- High altitude rumbles, snaps, booms
  - *Off English coast*
  - *Off East coast of U.S.*
  - *Over West Coast of U.S. in thunderstorms*

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## **Possible Tests (3)**

- **Blinding of several U.S. satellites (up to 4 hours in duration)**
- **Cold Explosion off Kurils 1984**
  - **First, a cold explosion**
  - **Then test of giant Tesla shield 300 mi. dia.**
- **Tests offset from shuttle launch Nov. 85**
- **Kill of Arrow DC-8, Gander, NFLD Dec. 1985**
- **Titan kill, Vandenberg AFB, CA early 1986**
- **Kill U.S. Challenger, off Cape Canaveral 1986**
- **Earthquakes induced, 1986-88**
- **Dozens of tests of shields around the world**
- **Decades of radiating U.S. Embassy in Moscow**

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## **Possible Tests (4)**

- Extensive tests 1990-99 in Western Australia
- Engineering of weather since 1990 by Yakuza
- Possible nuclear dudding test in WA in 90s by Aum Shinrikyo
- C-130 engine flameout kill
- TWA-800 kill 1997
- Gulf War Disease Induced, 1991
- Spreading of immune systems of U.S. populace, 1990s
- Psychoenergetic control of Captain Button
- Psychoenergetic control of Captain Svoboda
- Twice in 1997, within days of full strategic destruction of U.S.

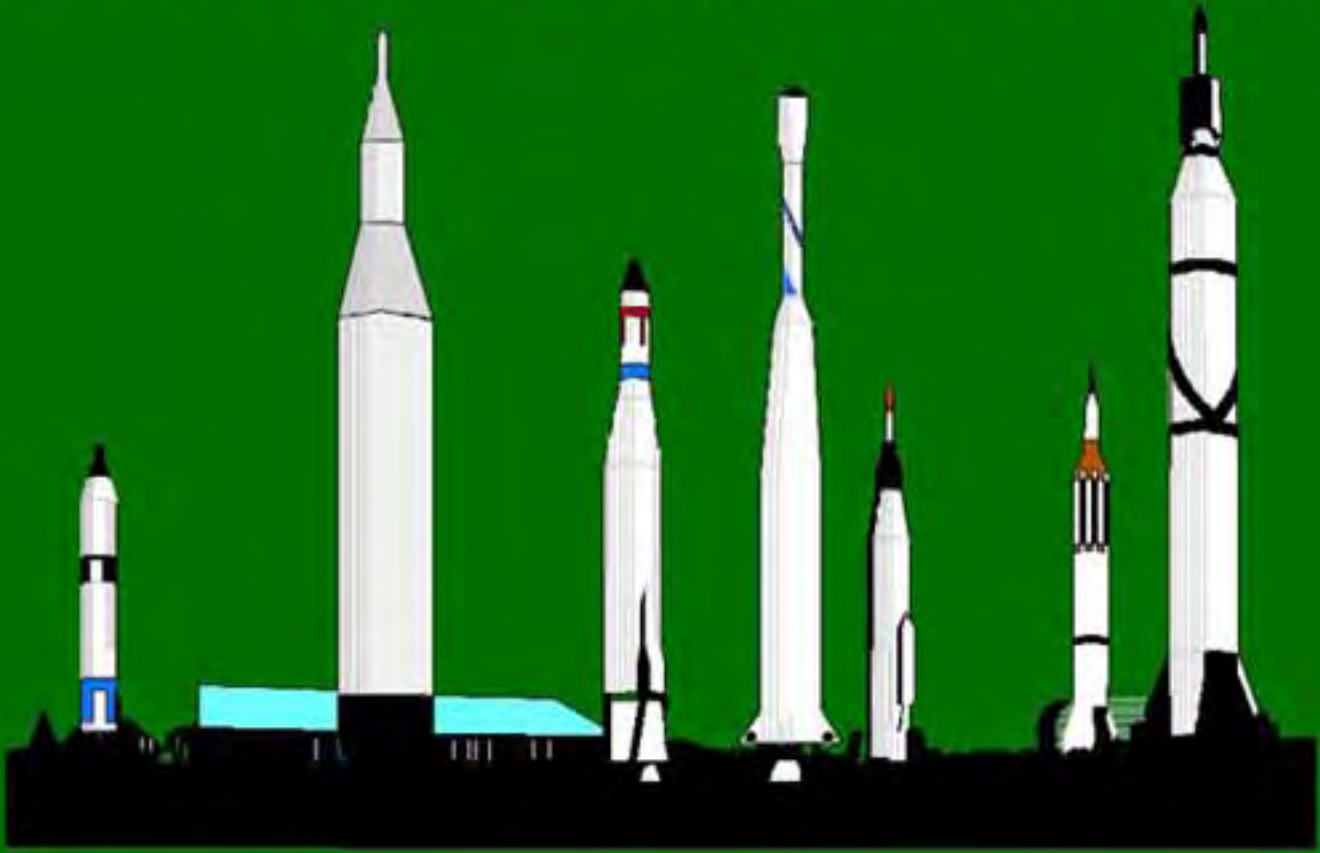
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# ***Mushroom cloud rising from sea***

- **0514 hrs, 9 April 1984**
- **Gray-white cloud appeared**
- **Rose 60,000 feet in 2 minutes**
- **South of Kuril Islands**
  - *180 miles southeast of Hokaido*
  - *200 miles from Tokyo*
- **Soviet missile testing scheduled about 350 miles away, at 2100 hrs, 9 April 1984**

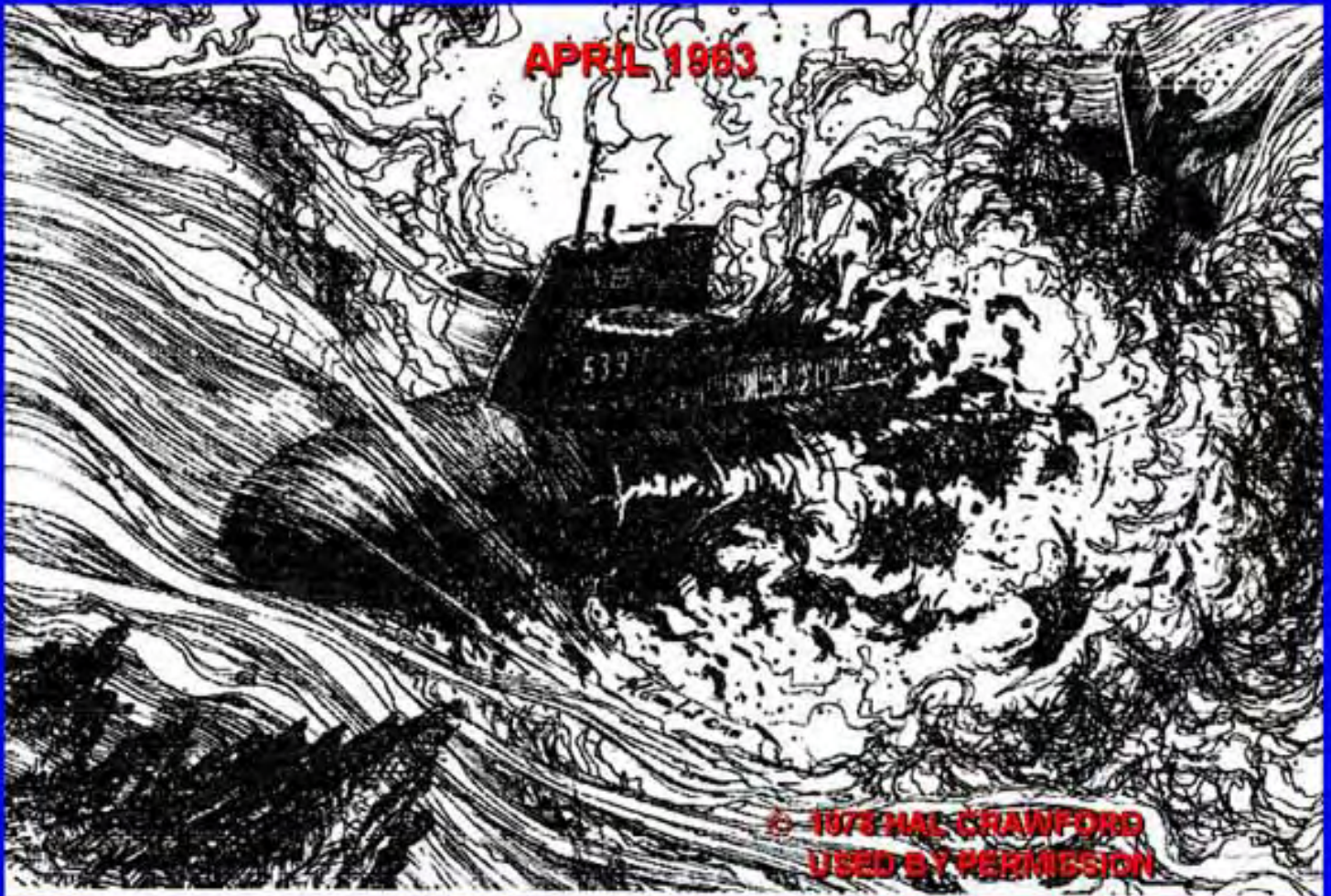
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# ***Launches from Cape Canaveral and Vandenberg AFB Provided Practice Targets of Opportunity***

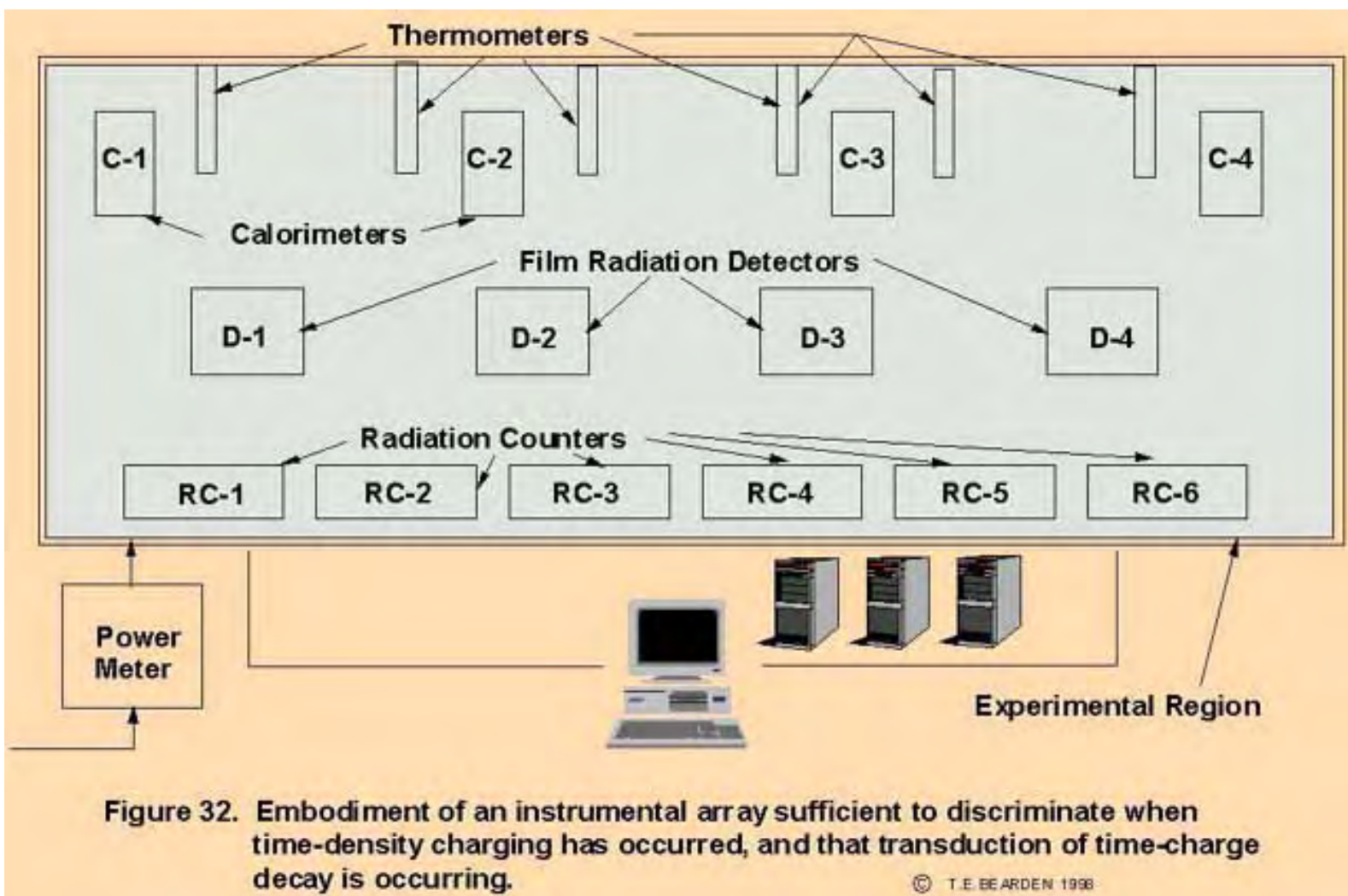




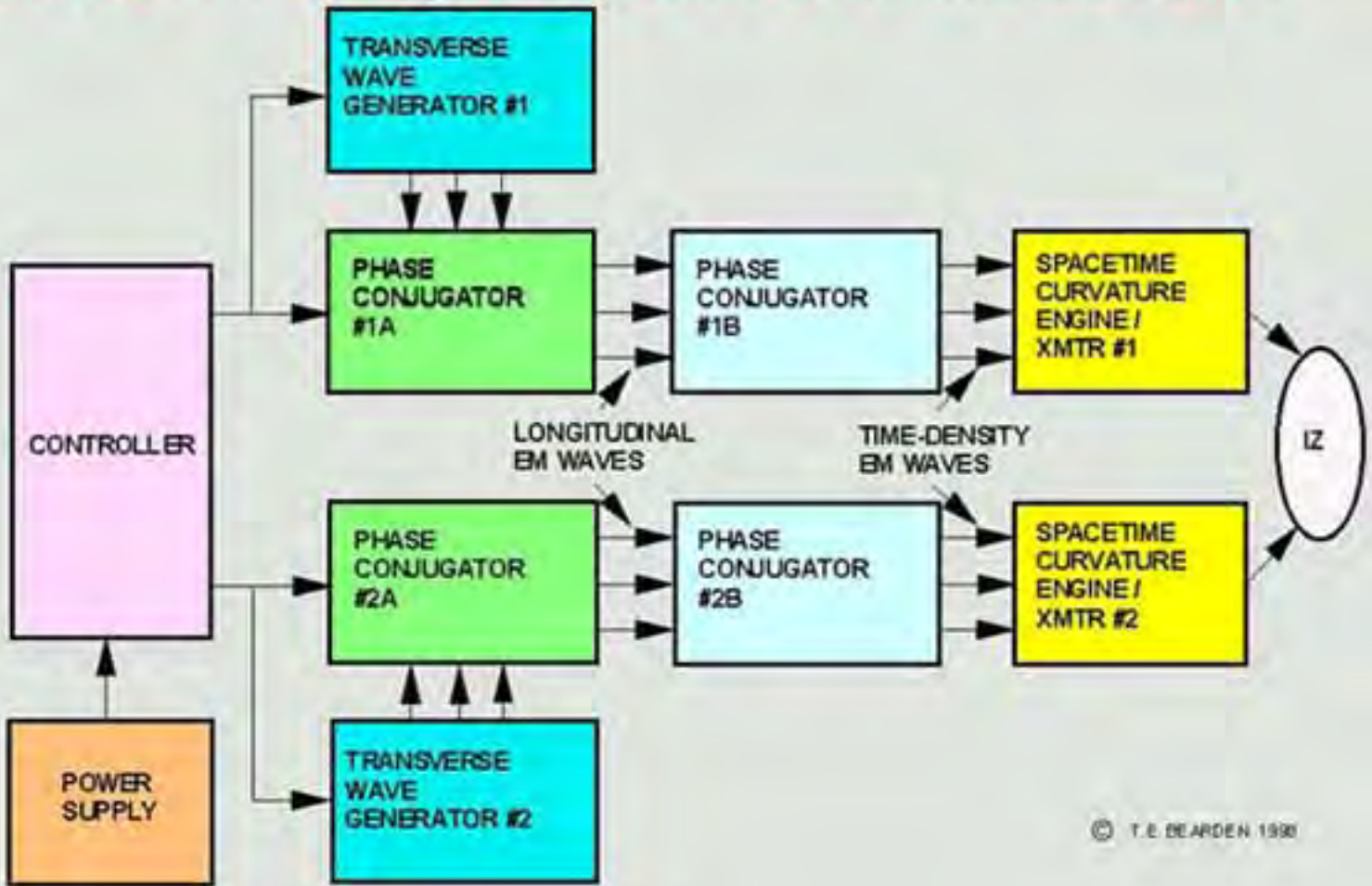
# **The sinking U.S.S. Thresher, with her controls jammed, implodes when she reaches crush depth**



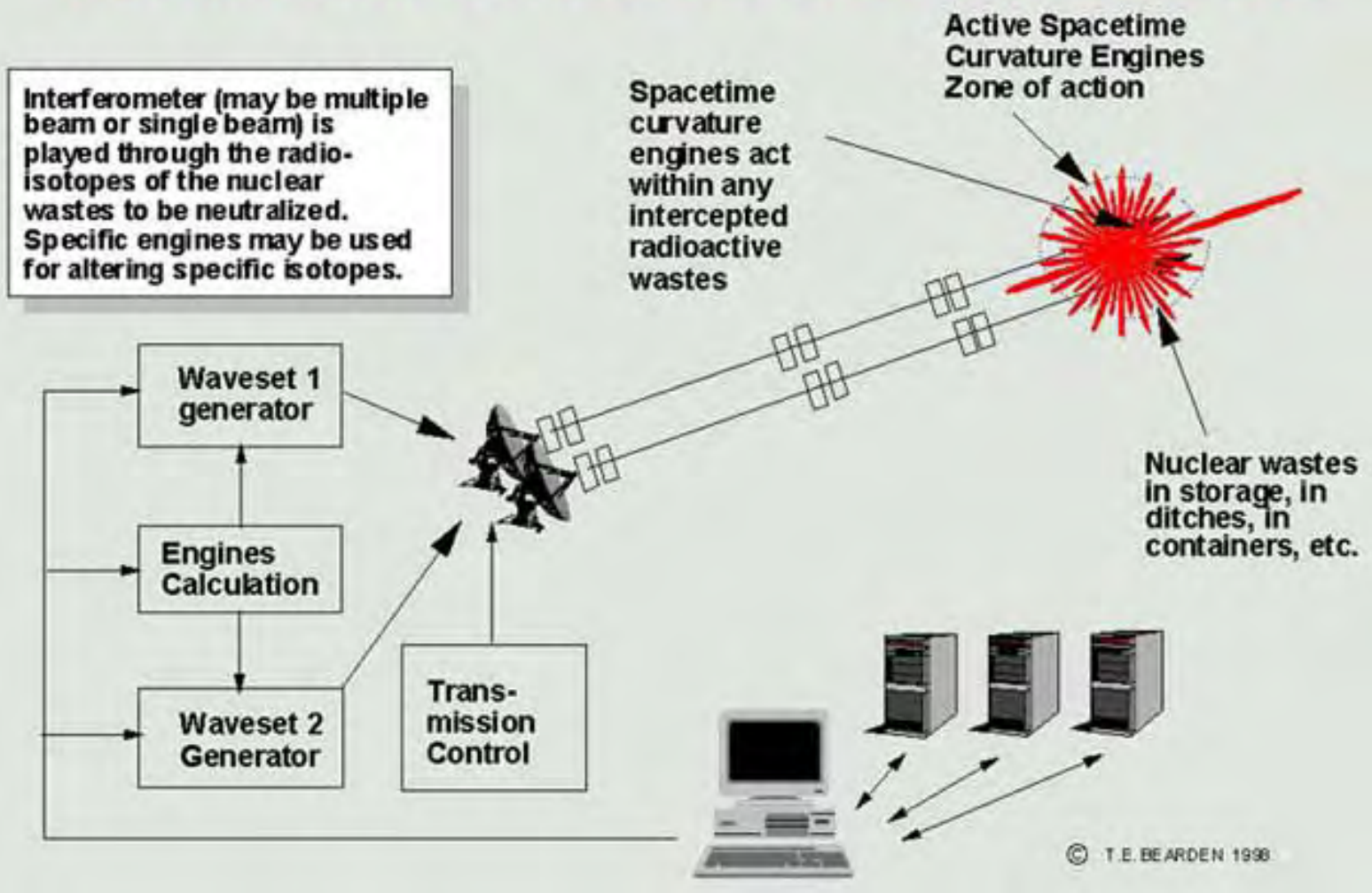




## ***Time-Polarized EM Wave interferometer Creating Space-Time Curvature Engines in a Distant Interference Zone***



## **Transmutation of Radioactive Nuclei at a Distance**





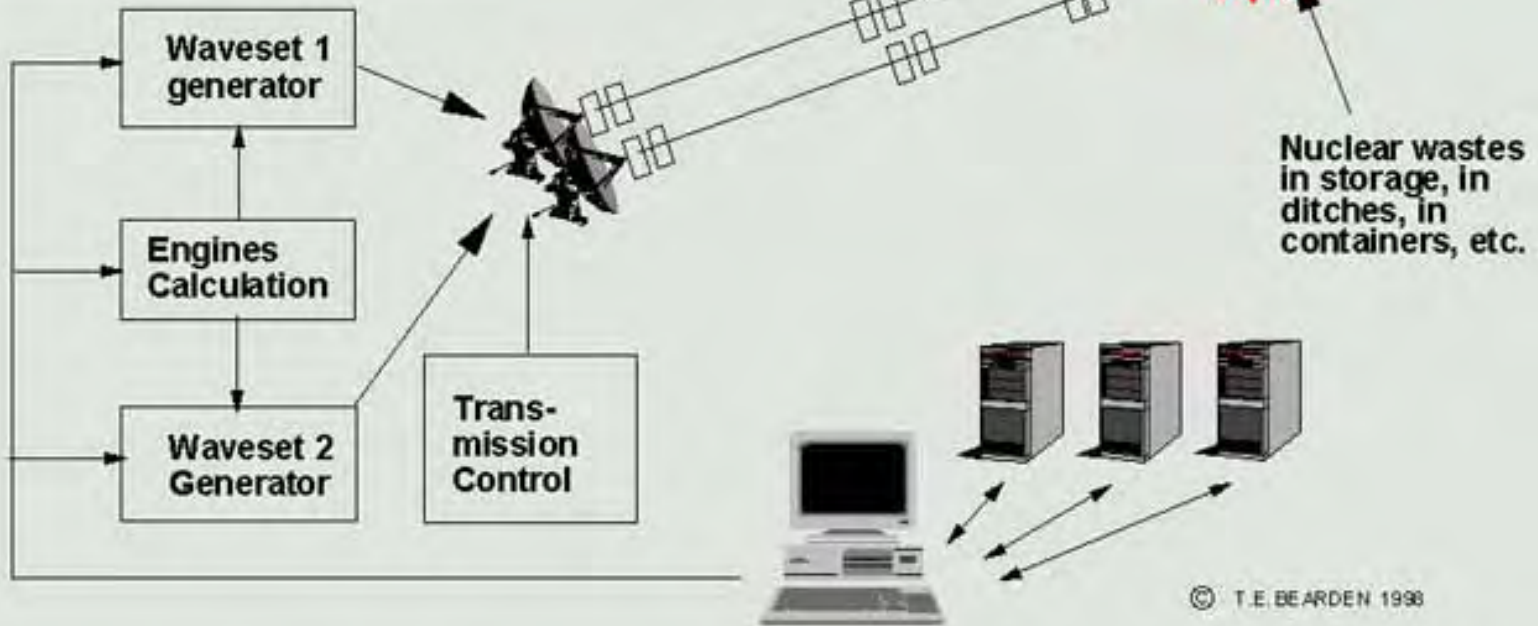
## Transmutation of Radioactive Nuclei (2)

Specific spacetime curvature engines used are to add excess energy to selected radio-nuclei, including intermediate decay isotopes. In this way, decay is dramatically speeded up.

Spacetime curvature engines act within any intercepted radioactive wastes, adding excess energy

Active Spacetime Curvature Engines Zone of action

Nuclear wastes in storage, in ditches, in containers, etc.



# Typical Shield Test, Northern Route to Japan





## ***A Curious Tide in Human Affairs***

To win its freedom in the long run, usually a group must defeat its attackers or suppressors *at least twice*.

- We fought the British twice for our independence.
- We are fighting ourselves twice to free the slaves.  
- American Civil War  
- Civil rights struggle
- We beat the Germans twice, in WW I and WW II
- We beat the Hispanics in the Spanish-American War. That's once. (They're winning the second by crossing the border. The U.S. is becoming a Hispanic Nation).

© 1987 E. BERNARD

***But we also have some unfinished business at hand.***

- We checked the Russians in the Cold War. Once.
- We checked the Japanese in WW II. Once.
- We checked the KGB in the Cold War. Once.
- We checked the Communists in the Cold War. Once.
- We checked Saddam Hussein in the Gulf War. Once.





# **Large Scalar EM Interferometer (LASI) Accident Near Urals, 1958**



© T.E. REARDON 1994, 1998

- **1958 nuclear explosion near Urals**
  - Signature of large scalar interferometer (LASI) accident
  - Buried atomic wastes suddenly exploded
  - Large region contaminated to this day
- **Soviets were well along with advanced LASI prototypes and testing**
  - Khrushchev announced forthcoming advent of these "fantastic" weapons in Jan. 1960
  - 1958 difficulties could have been resolved by 1960
- **Expected 1958 cause: transmitter short-out and failure in a nearby LASI discharged its cumulated energetics beam energy into the ground**
- ***Spreading ground pulse struck nearby atomic wastes, fissioning nuclei***

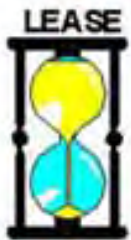


# **The Superpower Paradox: Asymmetric Cheap WMD Strategic Strike and Destruction**



# THE KGB/YAKUZA-AUM WAR PLAN

- *Dud all quantum potential weapons in other nations via psychoenergetics.*
- *Remove U.S., Israel, Brazil, West Europe as military powers.*
- *Destroy nuclear weapons, hostile energetics weapons, hostile ships, 80% of targeted populaces in first hour of strikes.*



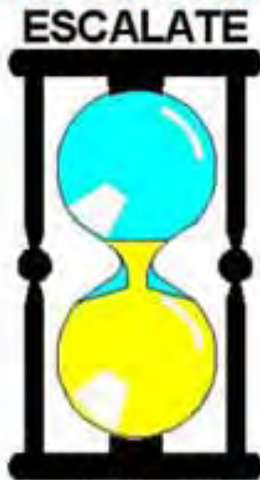
1990-91

Aum/Yakuza Acquired Use of on-site Russian Scalar EM (Energetics) Weapons. Began Geosurvey of Test Range (Western Australia) for training. KGB Tested QP population wpn (Gulf War Syndrome)



1991-94

Began extensive training of AUM-Yakuza crews in Russia, with practice firing into Western Australia. J-team took over worldwide weather engineering. Preparing for occupation of West Australia.



1995-99

Began EM kill of selected lone U.S. targets, iaw strategic deception plan.  
U-2 a/c? USAir 747?  
TWA-800 C-130  
ValueJet? A-10s  
Surged electrical grids.  
Worldwide practice kills, scalar interferometry, QP modification of selected pathogens

**STRIKE!**



Plan:

Trigger terrorist BW, & WMD attacks. Enhance BW infections with QP wpn. When ready, counter insane QP weapons with psychoenergetics. Destroy QP wpons. Dud all nuclear weapons worldwide; Time-snap ships, scalar weapons sites; Attack major target populations w/QP. Then cleanup with interferometry strikes.





# Why Western Science is Ignorant of KGB Energetics

- Foundations of electrodynamics and much of Western physics are seriously flawed
- Only just rediscovering longitudinal EM waves
- No knowledge of using time-polarized EM waves
- Does not know a powerful GR is hidden in EM
- Ignores inner structure of potentials, waves, fields
- Hotly defends errors, ignores for a century
- Determined to push big nuclear science
- Suppresses research to approved dogma by rigorously controlling precisely what research the funds can be used for

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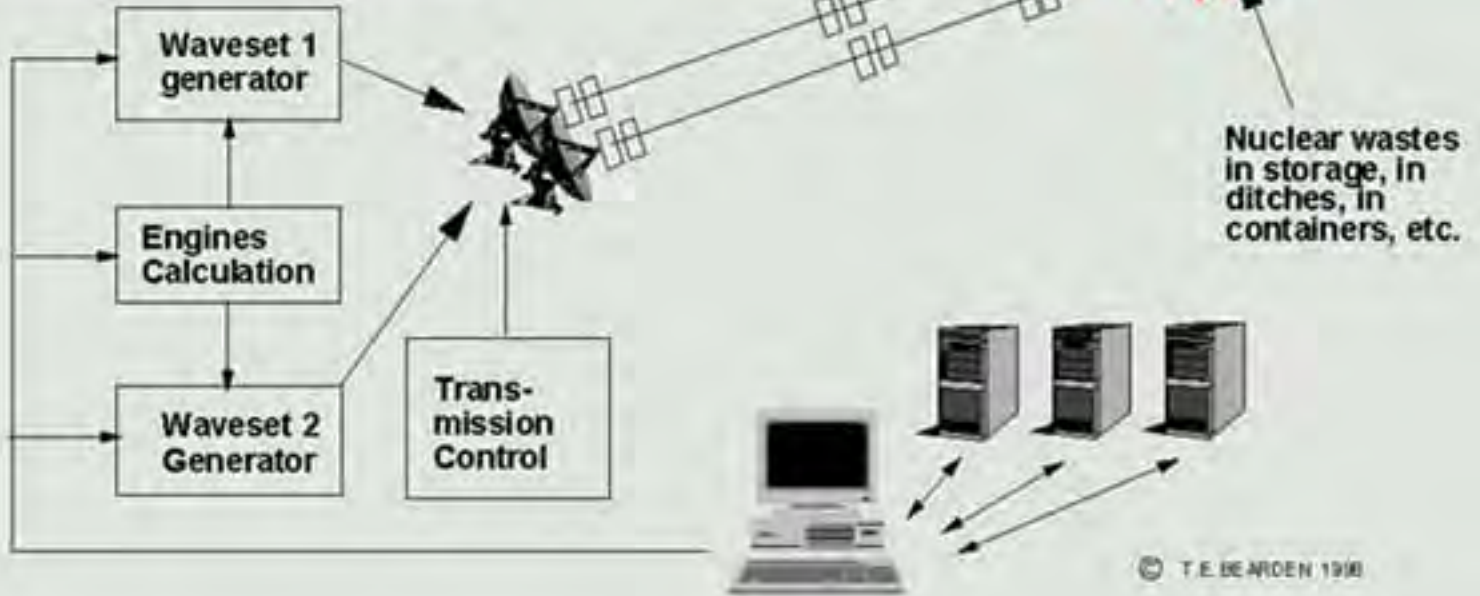
## Transmutation of Radioactive Nuclei at a Distance

Interferometer (may be multiple beam or single beam) is played through the radio-isotopes of the nuclear wastes to be neutralized. Specific engines may be used for altering specific isotopes.

Spacetime curvature engines act within any intercepted radioactive wastes

Active Spacetime Curvature Engines  
Zone of action

Nuclear wastes in storage, in ditches, in containers, etc.



# THE YAKUZA

(JAPANESE MAFIA)



To do business with Japan is to do business with the Yakuza

## The Last Samurai, Defending Bushido



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- 3 Major Yakuza Groups, In Coalition.
- Penetrate Japanese Government.
  - Open Offices, Signs on Street.
  - Public Romanticizes Yakuza as Last Japanese Samurai
- In Large High-Tech Corporations.
  - In Control of Japanese Banks.
  - Japanese Real-Estate Rip-off.
  - \$500 - 1,000 Billion per Year Income.
- Rapidly Spreading in U.S.
- Uniting Mafia Groups Worldwide.
  - Coalition with Aum Shinrikyo.
  - Leased Russian Energetics Weapons.
- Crews On-site in Russia, Trained.
  - Practice Firings into Western Australia for Three Years. (Dozens of Shots per Month)
- Now in Escalation Phase, Killing U.S. Targets.
- All-out Strike on U.S. ready 1999-2000.
- Now held in check by KGB, dead-man  
fuzed by small nation friendly to U. S.





## Yugoslav Earthquake, Followed by Cold Explosion

Apr. 15  
1979

- **Magnitude 7.2 on Richter scale**
- **Epicenter 33 km. deep**
- **More than 100 aftershocks**
- **At Kamenari:**
  - Adriatic sea mushroomed up
  - Like atomic bomb explosion
  - Signature of a cold explosion
  - Similar to Apr. 1984 test off coast of Japan, near Kurils (see inset graphics)
- ***Note that April is a significant test month for the Communists (preparing official reports for May Day?)***

OFF JAPAN, NEAR KURILS



1984 COLD EXPLOSION  
SIMILAR TO THIS ONE

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<b><u>Page 1</u></b>	<b><u>Page 2</u></b>	<b><u>Page 3</u></b>	<b><u>Page 4</u></b>	<b><u>Page 5</u></b>	<b><u>Page 6</u></b>
<a href="#">(Table 1)</a>	<a href="#">(Table 2)</a>	<a href="#">[note 6]</a>	<a href="#">[note 10]</a>	<a href="#">[note 14]</a>	<a href="#">[note 16]</a>
<a href="#">[note 1]</a>	<a href="#">[note 2]</a>	<a href="#">[note 7]</a>	<a href="#">[note 11]</a>	<a href="#">[note 15]</a>	<a href="#">[note 17]</a>
	<a href="#">[note 3]</a>	<a href="#">[note 8]</a>	<a href="#">[note 12]</a>	<a href="#">Figure 11</a>	<a href="#">(Figure 13)</a>
	<a href="#">[note 4]</a>	<a href="#">[note 9]</a>	<a href="#">[note 13]</a>	<a href="#">Figure 12</a>	<a href="#">(Figure 14)</a>
	<a href="#">[note 5]</a>	<a href="#">(Figure 1)</a>	<a href="#">(Figure 7)</a>		<a href="#">(Figure 15)</a>
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<a href="#">[note 13]</a>	<a href="#">(Table 3)</a>	<a href="#">[note 23]</a>	<a href="#">(Table 4)</a>	<a href="#">[note 31]</a>	
<a href="#">[note 18]</a>	<a href="#">[note 22]</a>	<a href="#">[note 24]</a>	<a href="#">[note 28]</a>	<a href="#">[note 32]</a>	
<a href="#">[note 19]</a>	<a href="#">(Figure 17)</a>	<a href="#">[note 25]</a>	<a href="#">[note 29]</a>	<a href="#">[note 33]</a>	
<a href="#">[note 20]</a>	<a href="#">(Figure 18)</a>	<a href="#">[note 26]</a>	<a href="#">[note 30]</a>	<a href="#">[note 34]</a>	
<a href="#">(Figure 16)</a>		<a href="#">[note 27]</a>	<a href="#">(Figure 21)</a>	<a href="#">[note 35]</a>	
		<a href="#">(Figure 19)</a>	<a href="#">(Figure 22)</a>	<a href="#">(Figure 23)</a>	
		<a href="#">(Figure 20)</a>			



# CHASING THE WILD DRAGON:

## Foundations of a New Science

By T.E. Bearden

November 12, 1995

It is a pleasure to accept the offer of John and Larry to write a column in their new InterNet magazine. Theirs is a great venture, and with the energy and knowledge they bring to the task, one can be confident of their success in making this a very interesting and informative publication.

There is a new "rebel" science slowly being born, with most of the work being done outside the universities and orthodox scientific community. In the months ahead it will be my job to try to acquaint you with the gist of what's going on, and what all the excitement is about.

This first article is deliberately just introductory, and its purpose is to interest you in the unusual fields we are going to be covering in more scientific detail, in future columns. We will also be listing a variety of references from the technical literature, which bear upon the various points addressed.

In this first article a little of my own background experience [\[note 1\]](#) is given, so you can decide whether you will be interested in what we have to say!

The real purpose of the column will just be to *present information* that you may not be able to readily obtain any other way. We will not argue or debate with skeptics; nothing productive is to be gained by that. If the information we present is useful to you, then our purpose has been accomplished. If it isn't of use to you, then just file it in the old wastebasket. Also, from time to time I may answer a generic question, constructed from multiple queries. Individual responses to correspondence cannot be provided.

The work toward a new breakthrough science is going on in a broad spectrum of "fields," most of which are not yet recognized by academia as even constituting legitimate areas of scientific endeavor ([Table 1](#)).

### Some of the major areas involved are:

1. theoretical and experimental research in overunity electrical machines,
2. free energy research of other kinds, such as devices utilizing thermodynamics phase changes,
3. rapidly advancing efforts in cold fusion,
4. work on permanent magnet motors,
5. antigravity research, both theoretical and experimental,
6. development and utilization of a "hidden" electrodynamics inside the scalar potential (inside voltage),
7. the "memory" of space and materials; where this "memory" can be deliberately conditioned so that space and the materials themselves become causal actants rather than simple inert entities,

8. direct engineering of quantum change via a new kind of "hidden electrodynamic variables,"
9. the direct engineering of the vacuum's virtual photon flux exchange with matter,
10. action at a distance, including the deliberate formation and usage of quantum potentials,
11. direct engineering of the local curvature of spacetime (yes, the direct engineering of general relativity, using the new hidden kind of electrodynamics),
12. use of the new "hidden" electromagnetics to engineer body cells including the reversal of diseased cells, genetics and all, back to a previous healthy state (cellular dedifferentiation, in biophysical terms, or cellular phase conjugation, in physics terminology),
13. research toward the direct engineering of the mind, including both the conscious and unconscious minds, long-term memory, and the personality itself, and
14. a ruthless re-examination (and correction where necessary and possible) of the definitions, concepts, and postulates that present physics is founded upon.

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[1] For those interested in orthodox qualifications, I have an M.S. in nuclear engineering (1971) from Georgia Institute of Technology and a BS in mathematics (1953) from what is now Northeast Louisiana University with a minor in electronic engineering.

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**Table 1. Fourteen Emerging New Science Areas**

1. Overunity Electrical Machines and Power Systems
2. Overunity Devices Using Thermodynamical Phase Changes
3. Cold Fusion and Non-Nuclear Transmutation
4. Self-Powered Permanent Magnet Motors
5. Antigravity and Antigravity Engineering
6. Use of the "Inner" EM Inside the Scalar Potential
7. Vacuum Engineering, With Vacuum and Materials Memory
8. Direct Engineering of Quantum Change
9. Engineering and Structuring of Massless Charge Flux
10. Action-At-A-Distance, Including Use of Quantum Potentials
11. Direct Engineering of Local Spacetime Curvature
12. "Inner EM" Time Reversal of Diseased Cells Back to Health
13. Direct Engineering of the Mind, Including Software Loading
14. Unified Field Revision of Foundations Concepts of Science

Each of these "major areas" as yet has no single "experts" in the sense that individuals exist who possess a "mastery" of the given area. As an example, in spite of multiple researchers and decades of vigorous research, no one is really an "overall expert" in the overunity electrical power systems field. The "field" itself is still struggling to be born and is not recognized at all by orthodoxy; in fact, many orthodox scientists bitterly resent one even attempting to work in this area. There is as yet no cohesive single "theory" of overunity electrical or magnetic machines, although our own group is making rapid progress in that respect. But there is still no universal agreement amongst even the researchers themselves. Literally the field is still being *discovered*.

This "groping dimly toward a new field" should not be too surprising. After all, the early electromagnetics researchers went through the same tortuous, agonizing kind of development. They were playing with cat fur, glass rods, and pith balls for quite an extended period before understanding progressed to the point where Maxwell could mathematically tie together and model the results of the experimenters such as Faraday and others. It has taken a century and a half for modern electromagnetics and electronics to reach its own present development. It is going to take another decade or so before the overunity researchers can overturn several ill-founded parts of the present electromagnetics and get the emerging field onto a solid foundations footing and into a solid theoretical position.

In the effort to produce a theoretical model of electromagnetics, Maxwell and his predecessors performed a magnificent work. Yet they also made very serious errors ([Table 2](#)), which persist to this day. [\[note 2\]](#) Let us list just a few of the more blatant errors in classical EM theory today:

First, Franklin guessed wrong on which way electrical current flowed in a circuit. There is no definition at all of electrical charge in all of physics, and there is no acceptable definition of potential (that is, there is no rigorous definition of just good old "voltage.") There are no "fields of force" in the vacuum; there are just potential gradients \_\_ because the vacuum is just one vast potential (virtual particle flux) in the first place. Force fields actually occur only in and of the matter in a material system. The primary causative agents of electromagnetics are not the so-called "force fields" at all, but are the potentials \_\_ as is well-known in quantum mechanics. [\[note 3\]](#) Maxwell assumed a material ether in his equations. The Michelson-Morley experiment destroyed the material ether, but the Maxwell equations have never been changed accordingly. The electron was not yet discovered when the Maxwell equations were written; the theory does not address electron spin. Maxwell was already dead some two decades when Barus' 1898 paper [\[note 4\]](#) was published, pointing out the strange "backwards-traveling" wave (i.e., time-reversed wave) solution to the wave equation. In addition, Heaviside and Gibbs had already produced their vector truncation \_\_ this truncated theory is the modern so-called "Maxwell's equations" that universities teach today \_\_ of Maxwell's theory. Not a single one of them ever appeared in any book or paper by James Clerk Maxwell. [\[note 5\]](#)

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**Table 2. Some Defects In Electrodynamics**

1. Conventional Current Direction Is Reversed
2. No Definition of Charge or Potential
3. Equations Still Assume Material Ether
4. Use of Force Fields in Vacuum is Known to be False
5. Treats Charge as Unitary; Instead, It is a Coupled System
6. Confuses Massless Potential Gradients as Forces
7. Does Not Utilize Mass as a Component of Force
8. Erroneously Assumes Force Fields as Primary Causes
9. Topology of EM Model Has Been Substantially Reduced
10. Does Not Include Quantum Potential
11. Does Not Include Proven Action At A Distance
12. Does Not Utilize Near Field Coulomb Gauge Effects
13. Does Not Include EM Generatrix for Time Flow
14. Does Not Unify Photon and Wave Aspects
15. Does Not Include Electron Spin and Precession
16. Treats Energy As Existing In "Chunks," instead of as Flow
17. Confuses Energy and Energy Collection
18. Discards Half of Every EM Wave in Vacuum
19. Erroneously Uses Transverse Vacuum Wave; It's Longitudinal
20. Omits Phase Conjugate Optics Effects
21. Does Not Include EM Cause of Newtonian Reaction Force
22. Erroneously Assumes Separate Force Acting on Separate Mass

[2] For an independent statement that electrodynamics, both classical and quantal, are in serious disarray, see Mario Bunge, *Foundations of Physics*, Springer-Verlag, New York, 1967, p. 176. Quoting: "...it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state." Bunge points out many errors in electrodynamics. See also Terence W. Barrett, "Electromagnetic Phenomena Not Explained by Maxwell's Equations," in Lakhtakia, A. (ed.): *Essays on the Formal Aspects of Electromagnetic Theory*, World Scientific, Singapore, 1992, p. 6-86. To find information on what's wrong with EM theory, one must read foundations literature, not the standard textbooks. One of my own contributions has been to point out that the notion of charge  $q$  is not unitary. In fact, electrical charge should be defined in terms of  $q \sim m(\text{sub } q)\sim(\text{sub } q)$ . In other words, electric charge  $q$  has a massive part  $m$ , and a massless part consisting of its potential  $\phi$ . Further, the magnitude of  $\phi$  is just the change in the virtual photon flux of the ambient vacuum, due to the [quantum field theoretic] virtual photon exchange with the mass of the  $q$ . It follows that the true electrical charge of a particle is just its native potential  $\sim$ , which is also a dynamic energy exchange with the surrounding vacuum. It also follows that this massless electrical charge changes whenever the particle is placed in a potential (in a different ambient virtual photon flux). After all, potentials superpose; that is their major characteristic. Note that the potential of the test particle is ignored in classical electromagnetics, whenever one speaks of the "E-field" upon the particle. Further, the actual structure of this virtual photon flux that comprises massless electrical charge, can itself be deterministically structured and utilized to generate nonlinear effects that do not appear at all in the present conventional theory. We will be covering many of these effects in future articles.

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[3] E.g., see Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Physical Review, Second Series*, 115(3), 1959, p. 485-491. Effects of potentials on charged particles exist even in the region where all the fields (and therefore the forces on the particles) vanish, contrary to classical electrodynamics. The quantum effects are due to the phenomenon of interference. These effects occur in spite of Faraday shielding. The Lorentz force does not appear anywhere in the fundamental quantum theory, but appears only as an approximation that holds in the classical limit. In QM, the fundamental physical entities are the potentials, while the fields are derived from them by differentiation.

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[4] Carl Barus, "A Curious Inversion in the Wave Mechanism of the Electromagnetic Theory of Light," American Journal of Science, Vol. 5, Fourth Series, 1898, p. 343-348.

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[5] E.g., see Paul J. Nahin, *Oliver Heaviside: Sage in Solitude*, IEEE Press, New York. Quoting from p. 9: "...nowhere in Maxwell's writings do the equations for the electromagnetic field appear as we write them today. Maxwell used an amalgamation of Cartesian component and quaternion notation, and it was Heaviside who first wrote the electromagnetic field equations in modern vector form." Quoting from p. 92: "In actuality , however, the fields were not the primary reality to Maxwell at all (that is an idea that developed after Maxwell's death and is due to Hertz and Heaviside), but rather it was Faraday's 'electrotonic state' that he thought to be the real thing. Like Faraday, Maxwell believed that electromagnetic effects are observable results of an altered state of the ether. The mathematical formulation of this electrotonic state, for Maxwell, is what we today (as he did) call the vector potential." And again, from p. 96: "To Maxwell, however, the vector potential had a most definite physical meaning."

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So the time-reversed EM wave that one finally sees emerging in nonlinear phase conjugate optics in the early 1970s was omitted from the Maxwellian theory and its later modification by Heaviside and Gibbs. Maxwell's actual theory is in a higher topology (quaternion algebra), and involves some 20 quaternion equations. Heaviside and Gibbs created vector algebra, and seriously curtailed Maxwell's theory when they "translated" it into the much lower topology of vectors and some four equations. The later addition of tensors as the basis mathematics did not restore the lost topology provided by the quaternion model. [\[note 6\]](#)

For the EM wave, Maxwell simply assumed the transverse EM wave that had come from the much earlier derivation of the familiar wave equation from the old "plucked taut string" notions. [\[note 7\]](#) Yet when one closely examines and corrects some of the erroneous *assumptions* [\[note 8\]](#) made for the actual mathematical derivation of this "taut string" transverse wave, one finds [\(Figure 1\)](#) that an equal-energy second antiphased transverse "antiwave" is actually produced by the instrument and added to the "plucked string's" transverse wave disturbance of the air medium, to produce a longitudinal wave of compression and rarefaction in the air itself. The "transverse string wave" in fact never leaves the string. The string wave is not the wave that is launched into the medium.

A similar electromagnetic situation exists. In a whip antenna [\(Figure 2\)](#), the Drude electron gas in the conductor does exhibit a transverse "string-type" EM wave of electron precession. However, at the same time, by Newton's third law (which Maxwell neglected because at the time the atom was regarded as just a blob with no internal structure) the positively charged, phase conjugated atomic nuclei have equal energy, highly damped transverse recoil waves created in them. Further, these "nuclei-recoil" waves are phase conjugate replicas of the electron gas waves. The total disturbance that is launched into the vacuum from the whip antenna is (a) the normal transverse disturbance of the virtual photon flux of vacuum caused by the electron gas wave, and (b) the coupled equal-energy transverse antiwave caused by the nuclei-recoil via Newton's third law. The amplitude of the material antiwaves of nuclei vibration are highly damped because of the massiveness of the nuclei; however, they are of equal energy to the electron wave. But when launched into the same vacuum, the two equal-energy wave disturbances experience equal damping because they are in the same medium. Hence the wave and antiwave are (a) locked together in the vacuum, and (b) of equal energy, and (3) of equal amplitude once launched into the vacuum. What results is a vacuum EM wave of rarefaction (reduction in intensity) and compression (increase in intensity) of the virtual photon flux of vacuum \_\_\_ just exactly like what is launched into the surrounding gaseous air medium from the "plucked taut string" and perturbed body of a physical instrument. The EM wave in vacuum is a longitudinal wave directly analogous to a sound wave \_\_\_ just as Nikola Tesla stated. [\[note 9\]](#)

The vacuum may be considered a scalar potential, in which case it has an internal biwave structure [\(Figure 3\)](#). Interference of two potentials \_\_\_ i.e., the hidden interference [\(Figure 4\)](#) of their internal wave structures \_\_\_ in fact already creates all EM fields and waves.

When the incoming longitudinal "biwave" from the vacuum strikes the atoms of the receiving antenna, each atom may be considered a dynamic assembly of multiple dipoles, where each dipole consists of one of the electrons in the electron shells and one of the positive charges in the nucleus. The receiving dipole in the interacting atom splits the two waves apart again [\(Figure 5\)](#). The negatively charged end of the dipole is time-forward, and the positively charged end is time-reversed.

Hence the separated normal-wave-half of the biwave interacts with the electron, to give again the familiar transverse "electron precession" wave that we detect with our "electron wiggle-detecting" instruments ([Figure 6](#)). This detected electron precession wave is what all our textbooks prescribe erroneously as the vacuum wave! The separated time-reversed-wave-half of the incoming vacuum wave is split off and interacts with the positive end of the receiving atomic dipole, in the time-reversed atomic nucleus, thus generating Newton's third law reaction force to provide the recoil of the nucleus. Present physics has ignored this second wave altogether, because of the serious error in the original derivation of the wave equation from plucked strings. Thus physics presently has absolutely no causative mechanism for Newton's reaction force. Instead, scientists just "mystically invoke the appearance of this magic force." Describing that something occurs, and naming its occurrence, does not constitute advancing a causative mechanism!

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[6] E.g., see T.W. Barrett, "Tesla's Nonlinear Oscillator- Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), 1991, p. 23-41. Barrett shows that a higher topology EM model (e.g., quaternions) allows shuttling and storage of potentials in circuits, and also allows additional EM functioning of a circuit that a conventional EM analysis cannot reveal. Tesla's actual patented circuits in fact exhibit this higher topology, when a quaternion EM analysis of them is performed. No orthodox vector/tensor analysis can show this.

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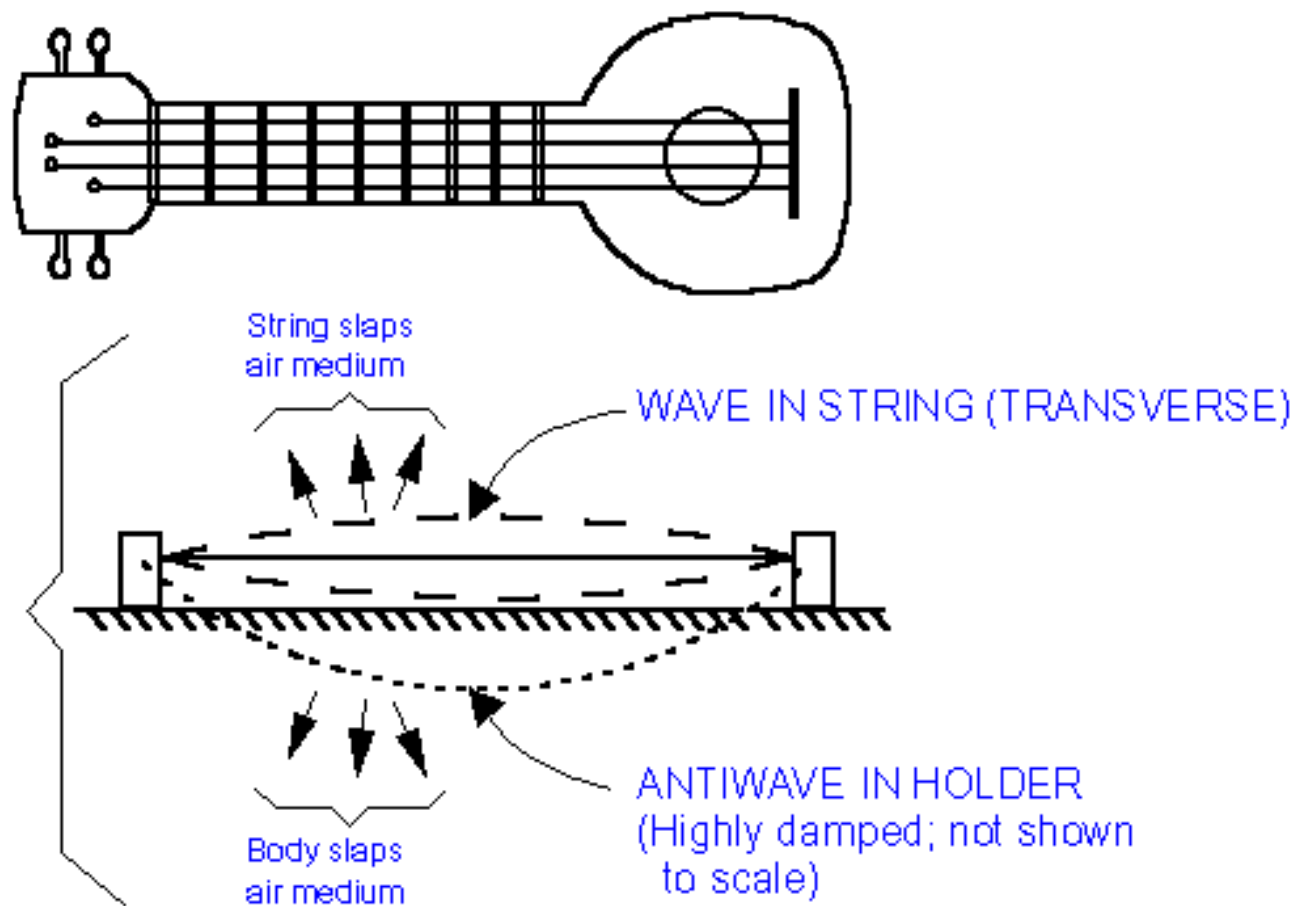
[7] All the early experimenters seemed to assume the transverse string-type wave automatically for the vacuum medium. E.g., Faraday speculated that light and radiant heat might be transverse vibrations propagated along his "lines of force," from which the direct "plucked string" analogy can readily be seen. In short, he considered that his lines of force could be perturbed to vibrate laterally, just like a plucked string. See M. Faraday, "Thoughts of Ray-Vibrations," *Philosophical Magazine*, (3), vol. xxvii, 1846, p. 345. Maxwell also assumed the transverse EM wave in vacuum without question, as did Heaviside, Hertz, and Gibbs and as has almost every electrodynamicist since then.

---



[8] The worst is the assumption of infinitely rigid endpoints holding the taut string, so that no movement of these endpoints occurs. This further assumes that no induced movement of the body of the instrument occurs. The end result is to eliminate all of that wave that is produced in the body of the instrument, and retain only the transverse wave produced in the string. In the first place, this standard procedure has now become a total violation of Newton's third law, which among other things requires that forces be formed in oppositional pairs. So the standard method for the launch of a wave from an instrument is flawed. Specifically, the "transverse string wave" is falsified insofar as its appearance in the surrounding medium. This is not the wave that actually exits the instrument and that is launched into the medium. This universal oversight on the part of mathematicians and physicists is a colossal joke upon them. Literally, when a physicist writes the transverse wave equation on the board, he has just discarded exactly half the physics. This means that, in his interactions, at the end there will suddenly appear this mysterious, mystical "equal and opposite reaction force" that is created by the erroneously ignored antiwave. So he has to piously invoke this reaction force "from the blue." Yet quantum field theory teaches us already that all mechanical and electromagnetic forces on a mass are generated by absorption and emission of virtual photons. Hence Newton's third law reaction force must also be so generated. This means that there must exist an equal number of virtual antiphotons interacting in the antiforce, as there was virtual photons interacting in the causative force. By symmetry there must also exist an equal and opposite wave, or antiwave, made of these same antiphotons. The actual disturbance that entered from the vacuum must therefore have consisted of both wave and antiwave. QED.

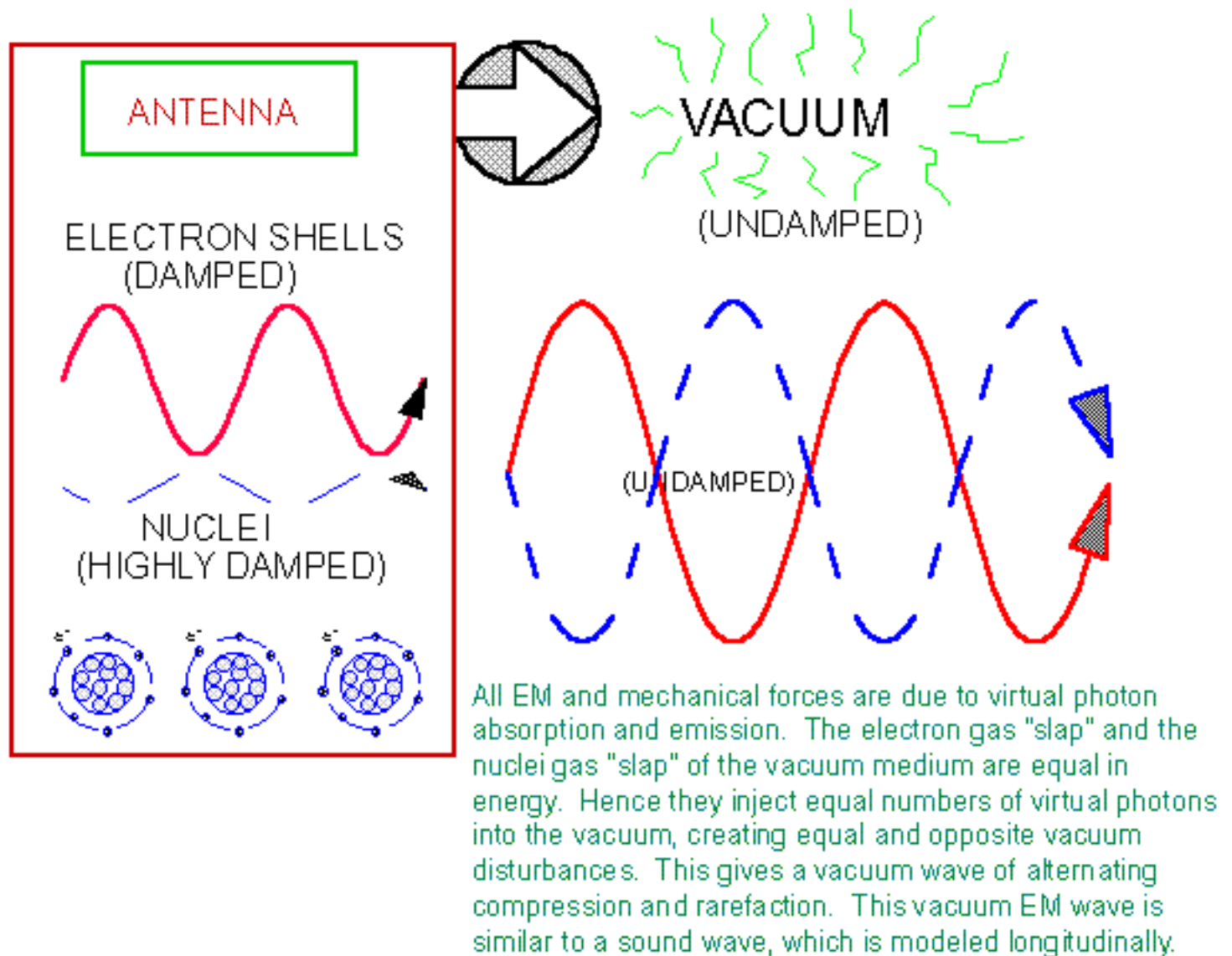
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**Figure 1. Air medium disturbances generated by plucked string.**

Two waves are created, both slapping the air medium at the same time, but in opposite directions. A disturbed medium oscillates according to its own degrees of freedom. The air has more degrees of freedom than the string. A wave of compression and rarefaction is created in the air medium.

## Modulations of virtual photon flux



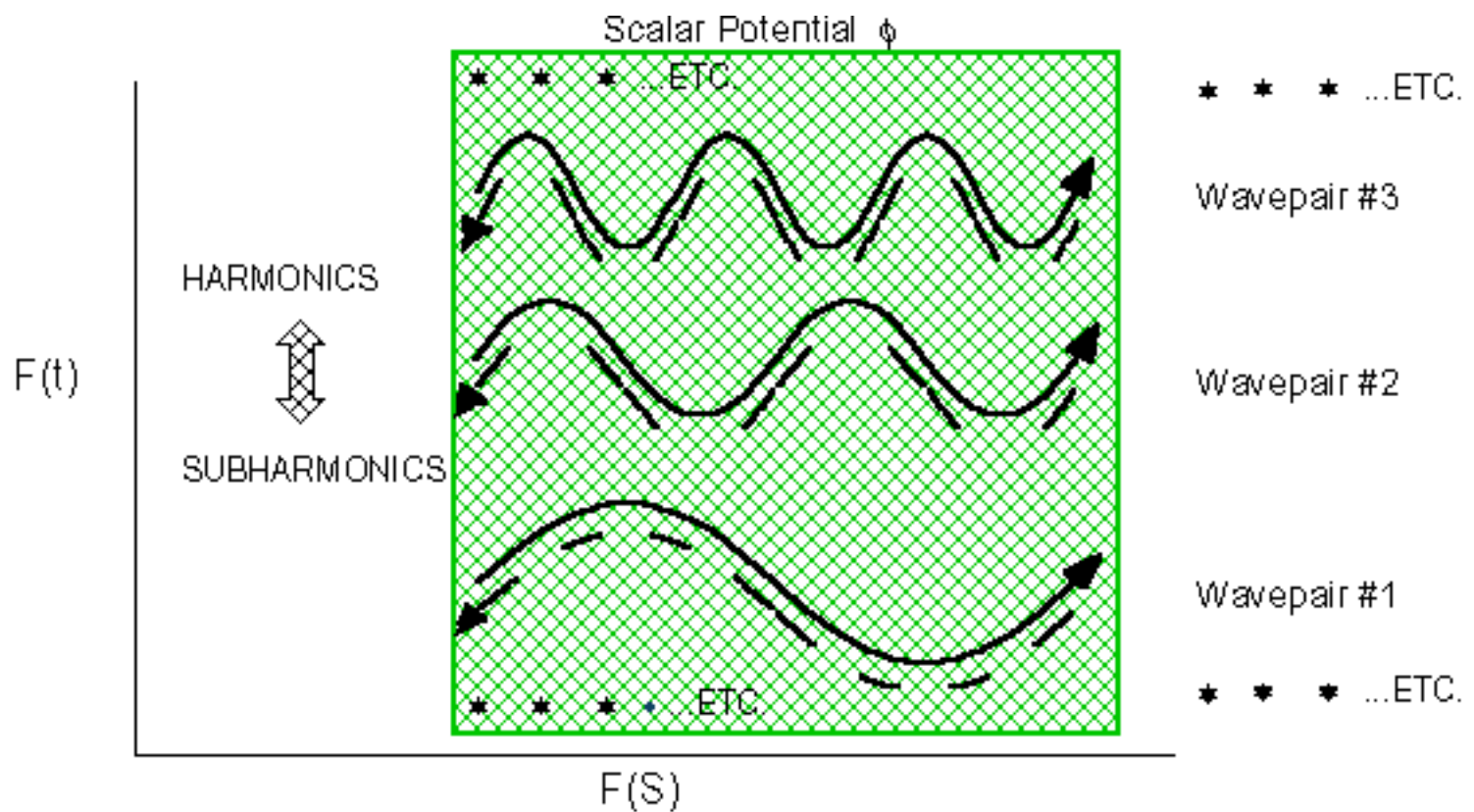
**Figure 2. Launching an EM wave from a wire antenna.**

D-1-F2

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[9] See Nikola Tesla, "Pioneer Radio Engineer Gives Views on Power," New York Herald Tribune, Sep. 11, 1932. Quoting: "...I showed that the universal medium is a gaseous body in which only longitudinal pulses can be propagated, involving alternating compressions and expansions similar to those produced by sound waves in the air. Thus, a wireless transmitter does not emit Hertz waves which are a myth, but sound waves in the ether, behaving in every respect like those in the air, except that, owing to the great elastic force and extremely small density of the medium, their speed is that of light." Today the QM vacuum has been theoretically and experimentally shown to consist of a "gas" of virtual particles, rather like Tesla stated. Tesla was also correct about the longitudinal EM wave in the vacuum. He was also correct in his statement that a fundamental charged particle can alter its charge, if one considers the massless charge  $\sim$  of charge  $q$  separately from the mass  $m$  of charge  $q$ . When the charge  $q$  is placed in a nonzero potential  $V$ , it follows that the new charge of the electron is simply ( $\sim +V$ ).

---



### Figure 3. Internal Wave Structure of the scalar potential.

A harmonic set of wavepairs, where in each wavepair the two waves superpose spatially, but travel in opposite directions. The two waves in each pair are true phase conjugates and time-reversals of each other. Thus they comprise a coupled wave and antiwave. The photons must also be coupled into photon/antiphoton pairs, by a strong application of the distortion correction theorem of nonlinear optics. *Each wavepair is a standing electrogravitational wave.*

**Note:**

- Positive energy: radiates.
- Negative energy: energy sink.
- Fixed energy: Trapped; does not radiate or absorb.

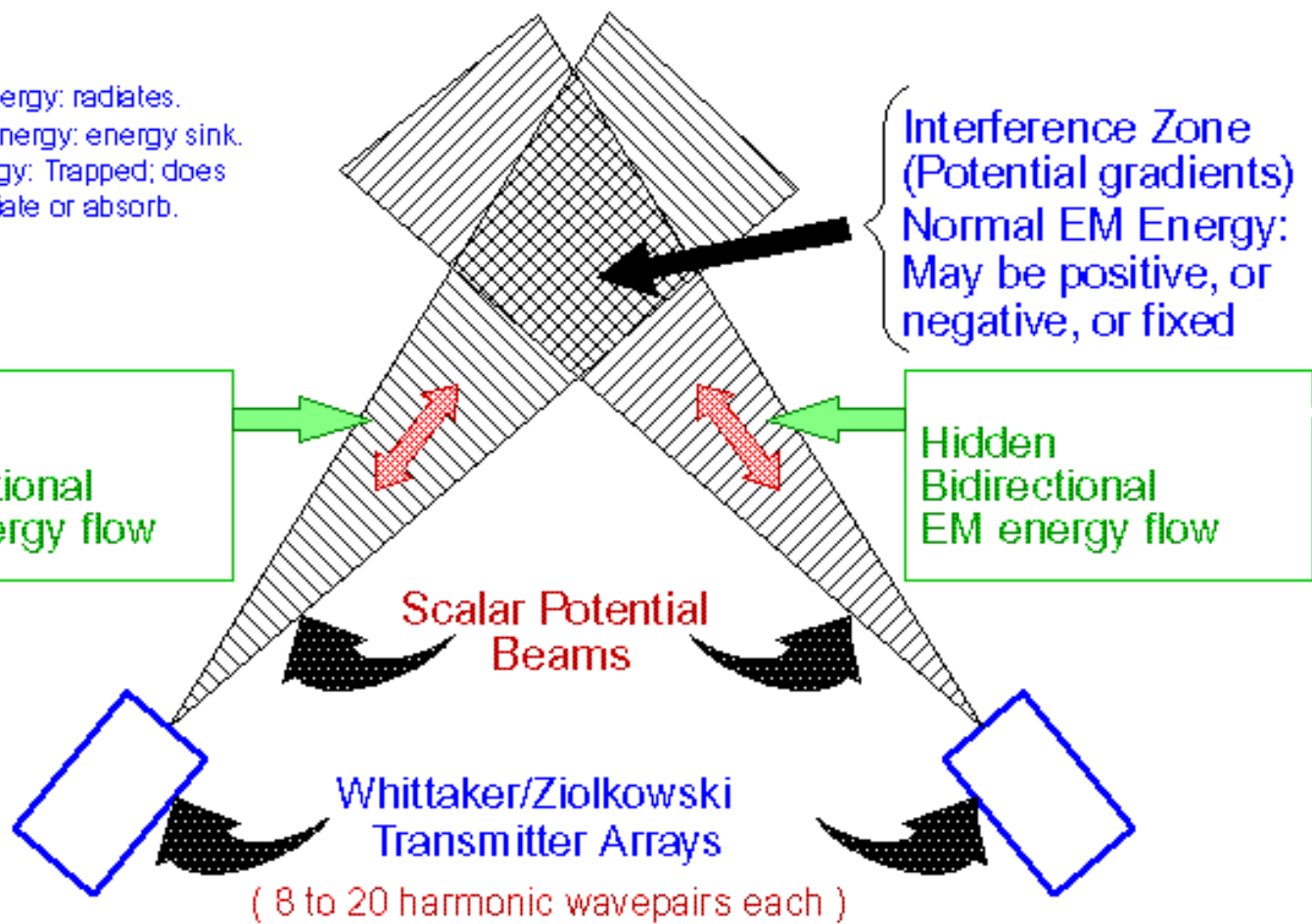
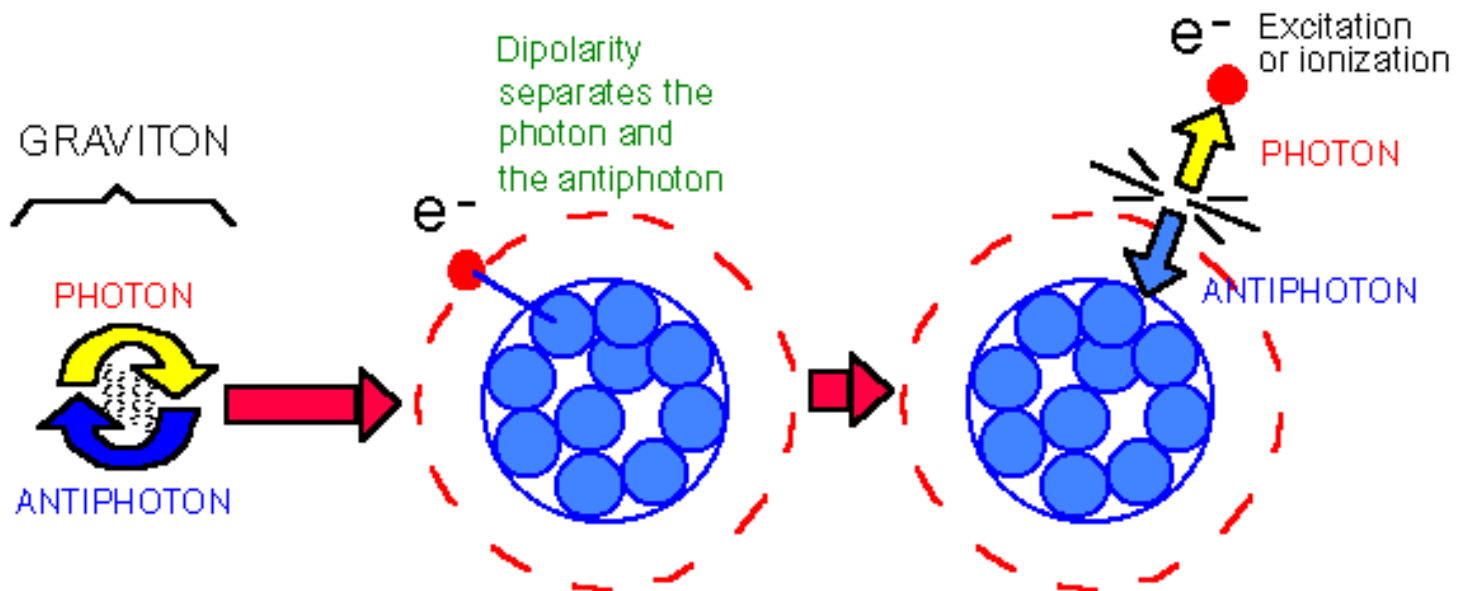


Figure 4. Scalar potential interferometry provides action-at-a-distance. It already creates normal EM fields and waves.

## MECHANISM FOR NEWTON'S THIRD LAW



NOTE: Graviton waves are bidirectional phase waves of photon/antiphoton coupling and uncoupling in the vacuum.

The atom is an assembly of dynamic dipoles.

A dipole splits the graviton into a photon and an antiphoton.  
 The photon interacts with the electron, producing the action.  
 The antiphoton interacts with the nucleus, producing the reaction.

Figure 5. Graviton interaction with matter produces the photon interaction and Newton's third law reaction.

D-1-F5



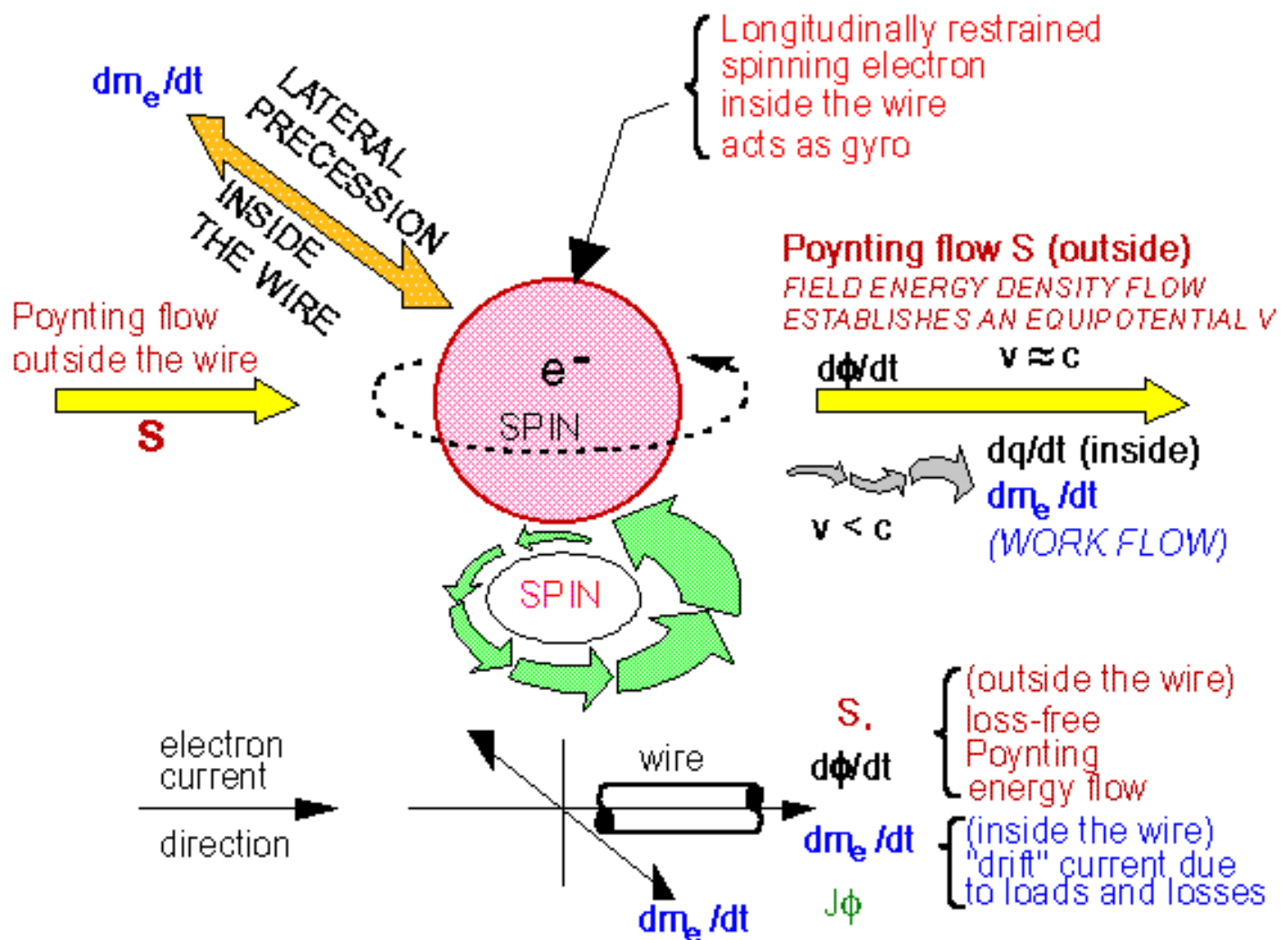


Figure 6. Currents in and along a conductor, with electron precession.

Further, if we should trick the time-reversed wave half into coming outside the atom instead of going inside to interact with the nucleus ([Figure 7](#)), then it follows that the nucleus would not recoil. In that case the interaction would appear to violate Newtonian third law reaction. Phase conjugate mirrors already do just exactly this when they emit a phase conjugate replica wave. They direct the antiwave outside and away from the atom instead of inwards into the nucleus. So they do not recoil, no matter how powerful a phase conjugate replica wave they emit.

Finally, we can also show that the EM wave in vacuum is longitudinal, by yet another approach. The electrons in the electron gas in a conductor are spinning, and they are severely constrained longitudinally to be able to move only very, very slowly down the wire. So when perturbed, they act as gyroscopes, and precess at right angles to the perturbing force. The fact that the gyroelectrons in a wire move radially almost entirely, and only "slip" down the wire very slowly with a "drift" velocity, already proves conclusively that the incoming vacuum disturbance was longitudinal. The precession of a gyro is at right angles to the perturbing force. Therefore rigorously the vacuum EM waves are longitudinal, because the gyroelectrons moved transversely. The present assumption of the transverse EM wave in vacuum contradicts the entire theory of gyroscopes! [\[note 10\]](#) There are many other errors in classical EM that we will point out in future articles; this should give the reader a flavor of what is in store for him in future articles.

So there are no truly satisfactory "experts" in any of the 14 fields. Yet there is still something to be said for having some years of experience in one or more of the areas. I have had the good fortune or misfortune, depending upon one's viewpoint, to be involved in various of those 14 activities for some 30 years or more, and am active in several of the areas now. My colleagues and I are particularly active in researching overunity electrical devices ([see Figure 8](#)), to include the effects of controlled chaotic oscillators, charge-blocking oscillators, and oscillators driven by in-shuttled (bridged) Poynting field energy density flow ExH. Parametric oscillation is known to have yielded overunity electrical machines and was fully reported by Russian researchers in the Russian and French technical journals in the mid 1930s. [\[note 11\]](#) We will further cite that little-known work in future articles. Also, we are working mightily upon true negative resistors ([Figure 9](#)), wherein the resistor scavenges some of the disorganized energy from the vacuum's energetic exchange with the charges in the system, organizes and collects it, and then outputs that collected energy flow into the external circuit. Such a resistor acts as a power source. Kron, perhaps the greatest of the electrical machinery scientists, is known to have produced such true negative resistors.

I have also proposed a theoretical explanation of the Priore device ([Figure 10](#)) in France which in laboratory animals demonstrated remarkable cures of terminal tumors, cured trypanosomias, reversed atherosclerosis, and restored suppressed immune systems. The Priore work was not anecdotal, but was performed under rigorous scientific protocols, working under the auspices of renowned French scientists such as Courier and Pautrizel. The work is properly reported in numerous papers in the French medical literature. [\[note 12\]](#) The results were certainly achieved, but neither Priore himself nor the scientists of the day could understand the mechanism involved. The deciphering of that causative technical mechanism utilized by the Priore group required 10 years of intense effort. The results have now been published in the journal Explore! and are there for anyone to read. [\[note 13\]](#)

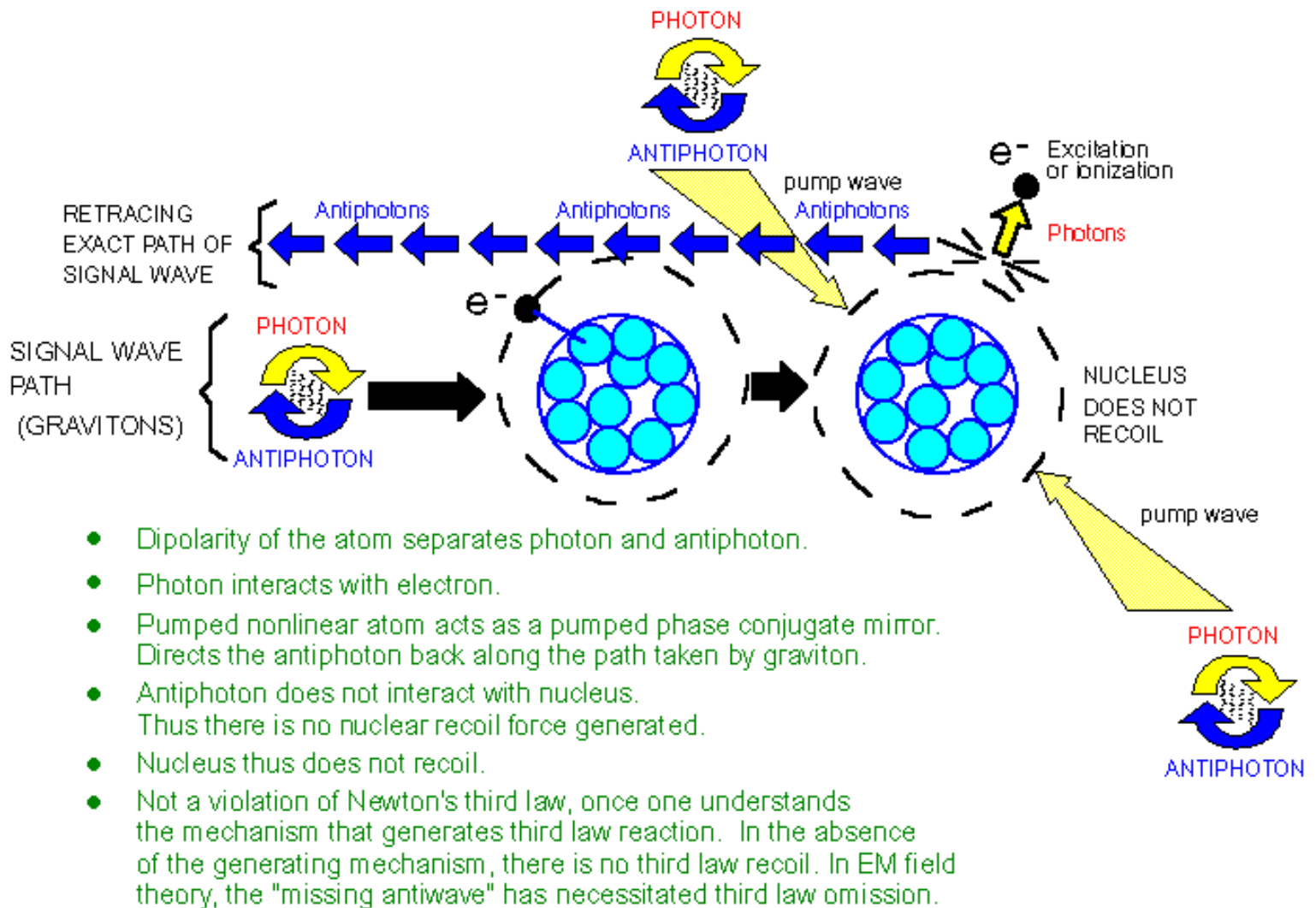
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# PHOTON INTERACTION WHEN ATOM PHASE CONJUGATES

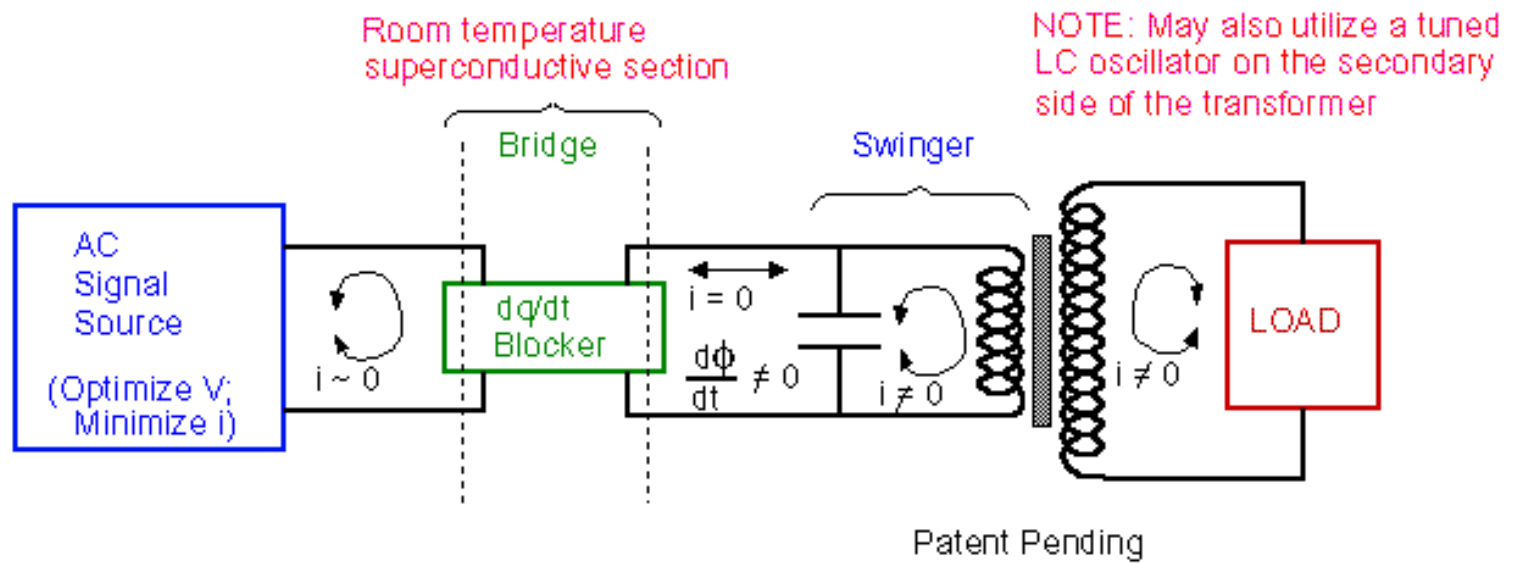


**Figure 7. Emission of antiphoton; nucleus does not recoil.  
Atom acts as a pumped phase conjugate mirror.**

[10] When Maxwell's theory was constructed, the electron had not yet been discovered, and so the dipolarity of the atom was unknown. An atom was regarded just as a "blob." Electricity in a conductor was regarded as a thin material fluid Maxwell's equations are in fact hydrodynamic equations. So the founders regarded the detection of induced motion in the electric fluid as induced translation, not induced precession. They had no idea of "spins" of particles of the fluid, nor of gyro precession of those particles. Instead,  $q$  was regarded just as a "piece of electric fluid," similar to a cubic centimeter of fluid.

---

# A fundamental AC resonant principle for an overunity electrical power system



**Figure 8. dq/dt-free driving a swinger by S-flow.**

Poynting energy flow  $S$  with its accompanying potential  $V$  is shuttled from the source to a tuned LC oscillator in resonance at the driving frequency or slightly below. The LC oscillator is driven by S-flow and  $dV/dt$  flow alone. The swinger furnishes its own free electrons, which receive  $S$  and EMF from the bridge, thereby producing  $dq/dt$ .

[11] E.g., see L. Mandelstam [Mendel'shtam, L.I.], N. Papalexi, A. Andronov, S. Chaikin and A. Witt. (1935) "Report on Recent Research on Nonlinear Oscillations," Translation of "Expose Des Recherches Recentes Sur Les Oscillations Non Lineaires," Technical Physics of the USSR, Leningrad, Vol. 2, 1935, p. 81-134. NASA Translation Doc. TT F-12,678, Nov. 1969. Summarizes lengthy work at the Institute of Physics of the University of Moscow and several of the laboratories on the problem of self-powered, self- oscillating nonlinear oscillators. The paper reports significant work and progress in oscillations created by the oscillating system itself (self-oscillation) without participation of any external forces varying with time and without the expense of a constant source of energy (e.g., a storage battery). Such a system was shown to self-increase in an underdamped manner until system self-destruction. Adding a nonlinear load allowed the systems to stabilize its dynamic operation so that it powered a load under overunity conditions and did not self-destruct. Extensive additional references on this spectacularly successful overunity energy project are listed.

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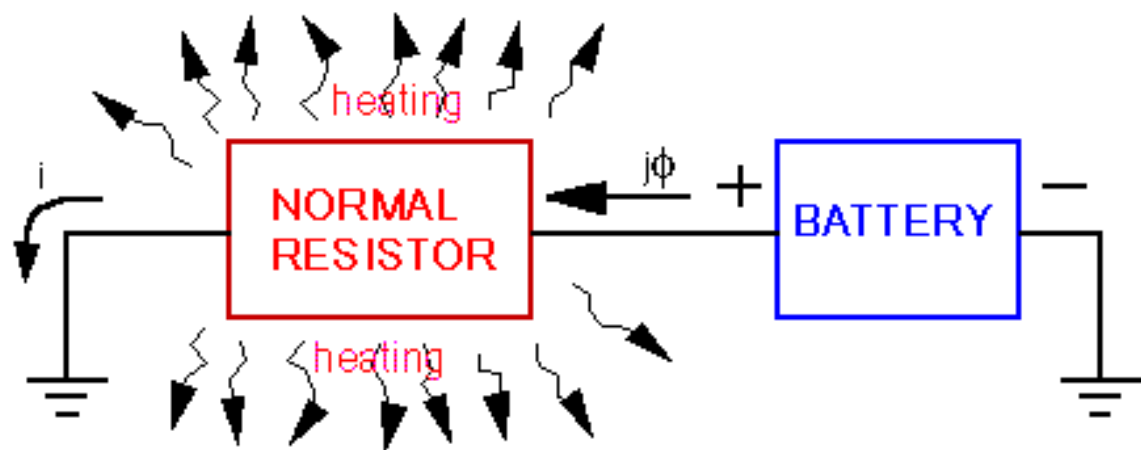


Figure 9a. Normal resistor receives ordered energy and scatters it.

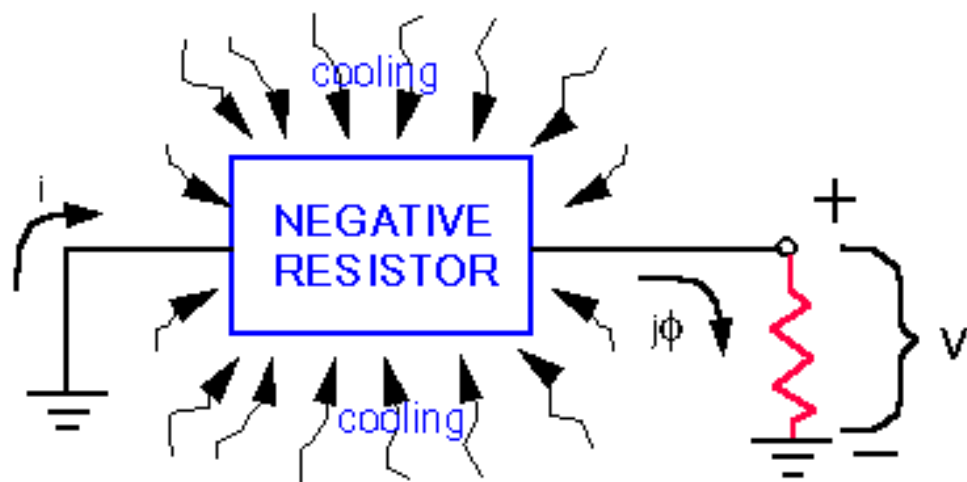
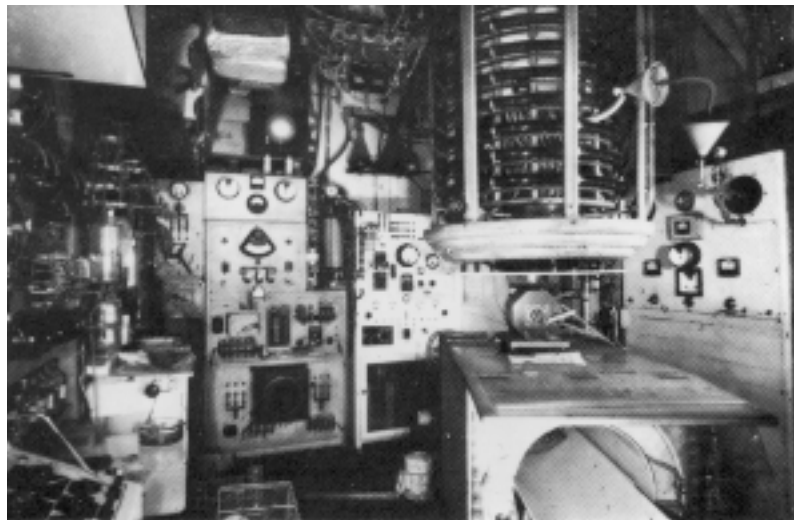


Figure 9b. Negative resistor receives, concentrates, and reorders scattered energy.

## Figure 9. Normal resistor versus a negative resistor.

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Some 17 signals were fed into a rotating plasma, which added phase conjugates to them. This infolded 17 wavepairs, each pair a coupled wave/antiwave, thereby forming a scalar potential with an artificial Whittaker pump wave internal structure. This infolded pump wave complex was modulated onto a powerful, rippling magnetic field, guaranteeing penetration even into the atomic nuclei. A specific, amplified antiengine for the exact cellular disease state was generated, reversing the diseased cells back to a previous healthy state.

**Figure 10. Priore's laboratory apparatus for cellular reversal.**

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[12] For citations and the exposition of our proposed explanation of the Priore mechanism, see T.E. Bearden, "Vacuum engines and Priore's methodology: The true science of energy-medicine." Part I, Explore!, 6(1), 1995, p. 66- 76, Part II, Explore!, 6(2), 1995, p. 50-62.

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[13] Bearden, "Vacuum engines and...", ibid.

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Presently my CTEC colleagues and I have filed three patent applications and a continuation, on various methods for overunity processes and apparatuses, room temperature superconductivity, Poynting generators, etc.

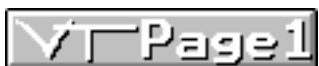
As an example, we took exactly the opposite approach to room temperature superconductivity as has been taken by all the orthodox researchers to date. What exactly is sought, after all, for superconductivity (SC) in a section of an electrical circuit? Well, one has some electrons on one side of that SC section that are transporting excess potential, as given by the Slepian vector  $J^*$ . [\[note 14\]](#) What is desired is to get some electrons on the other side of the SC section that also are transporting the same amount of excess energy in the form of  $J^*$ . You can do that in two ways: (1) you can flow the electron carriers through the SC section, carrying their  $J^*$ , or (2) you can block the  $J$  and flow the  $J^*$  itself across as the Poynting flow  $S$ . [\[note 15\]](#) Nondivergent Poynting flow flows along an equipotential, which is just another way of saying that, if the  $S$ -flow does not diverge, it carries the same potential  $J^*$  along with it. Hence it carries the EMF right along with it as it flows without divergence.

Conventional approaches have all tried to shove the electron carriers through the SC lattice section. Doing that is like trying to fire a very slow bullet through several million rotating fans in a straight line. So cryogenics (to slow the fanblades to a crawl) and massive correlation of the electrons and of the electron-to-lattice interactions is necessary if one is to get the electrons through there without excess collisions that shake off some of the excess  $J^*$  from  $J^*$ , as scattered photons (heat) or as a change of form of the energy (as in straining the dielectric of a capacitor to convert electrical energy to mechanical strain energy via the piezoelectric effect.)

Our approach is exactly the opposite ([Figure 11](#) and [Figure 12](#)). Why not just *stop* the flow of excited electron carriers on one side of the SC section, and continue the nondiverging flow of the Poynting field energy density  $S$  across that section at room temperature? Then the cryogenics is not needed at all. After all, circuits already work that way anyhow — except standard practice is to nullify the process by letting current be driven around the sourcing current loop and back through the back EMF of the primary source. A quantum well (or several other methods) can be used to trap the "sourcing" electrons in the conductor just prior to entering the SC section. The "receiving" electrons on the other side of the SC section, however, must be in their own  $dq/dt$ -isolated current loop.

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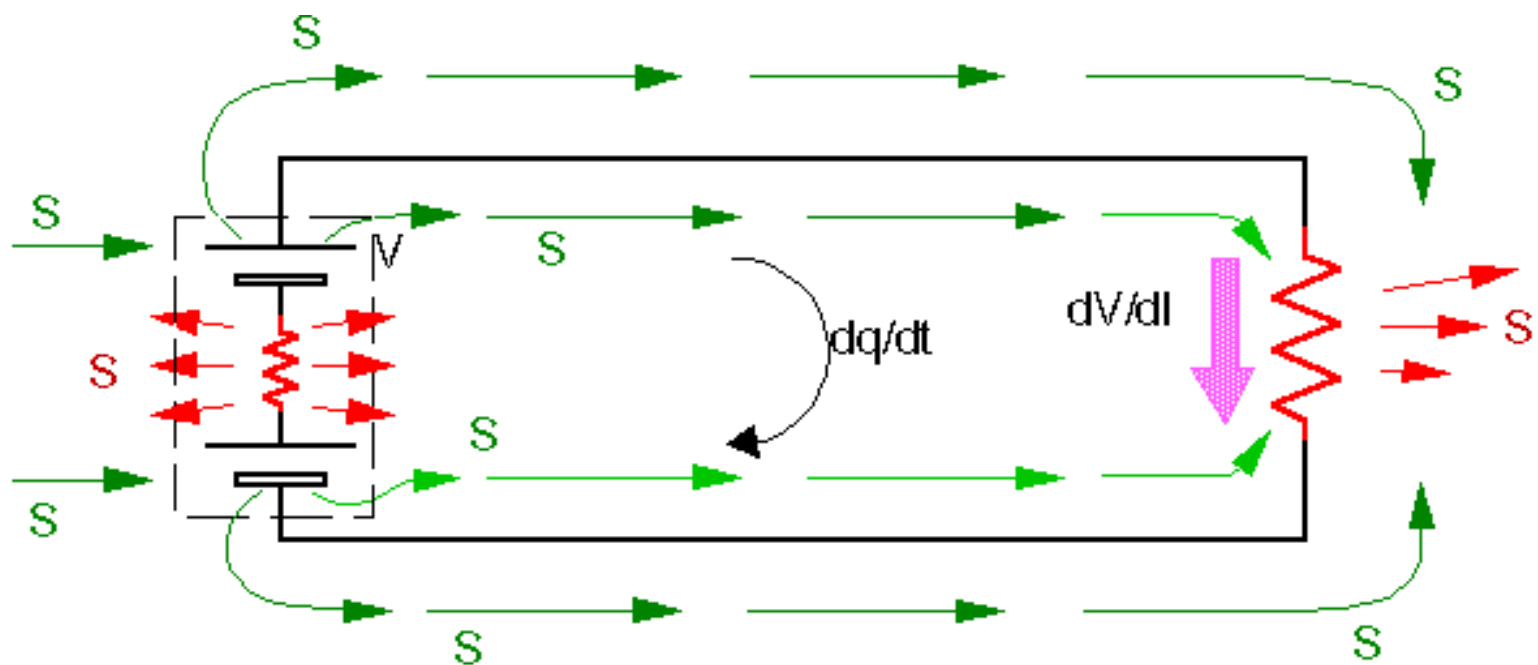
[14] Briefly, the S-flow outside the wire will be flowing along essentially at the speed of light, at or with the same since S-flow without divergence is along an equipotential. Said another way, a nondiverging Poynting flow  $\mathbf{S}$  exhibits a constant potential  $\sim$  along its streamlines. A tiny, tiny portion of the S-flow is intercepted by the sluggish electrons (which may be moving as  $dq/dt$  at 11 feet per hour, in a typical case), to form the Slepian vector  $\mathbf{J}_{\sim}$ . The  $\mathbf{J}_{\sim}$  portion is just the minute fraction of the S-flow that is actually intercepted by the electron current and transported to the impedances, for releasing the excess  $\sim$  in the loads and losses. [Incidentally, this wee note resolves a century of controversy over exactly how EM energy flows in circuits. The orthodox literature abounds with discussions, differing positions, and debates and with errors.]

---

[15] Note that this also automatically involves a host of other types of controversial displacement currents, such as  $d\tilde{\sim}/dt$ ,  $dV/dt$ ,  $dE/dt$ ,  $dP/dt$ ,  $dD/dt$ , etc. The literature is thoroughly floundering as to exactly how all these currents are related, together with the Slepian vector  $J\tilde{\sim}$  and the Poynting vector  $S$ , as well as the "normal" current  $dq/dt$ . We will be discussing the "master key" for these relationships in future articles.

---





Note: EM texts err in showing the battery "gate" as the source of energy.

**Figure 11. Poynting S-flow along a simple circuit.**

From particle physics, any electric charge is a broken symmetry in the vacuum's virtual particle flux. Any dipole is thus two locally broken symmetries. Thus the dipole acts as a gate/source, driven by the fierce vacuum flux. So a dipole already "extracts" and gates EM energy flow, directly from the seething vacuum.

*Every battery and generator is already a "free energy" source of extracted and gated EM energy from the vacuum.*

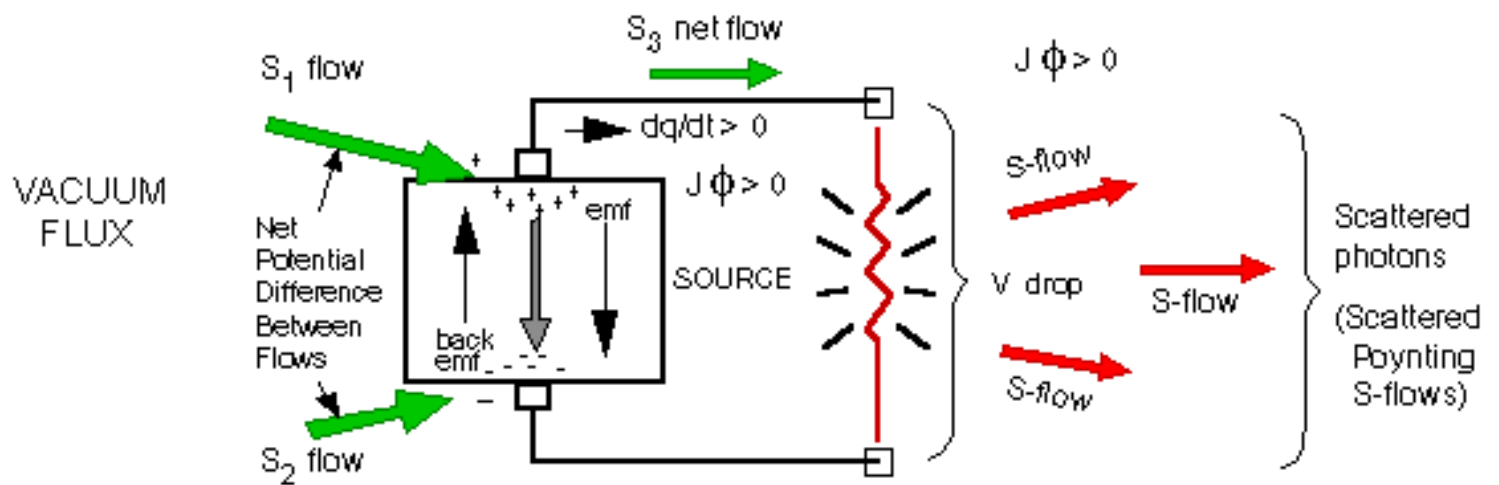


Figure 12a. Normal current flow;  $J\Phi$  is the electron transport of energy, while  $S$  is the speed-of-light Poynting energy flow.

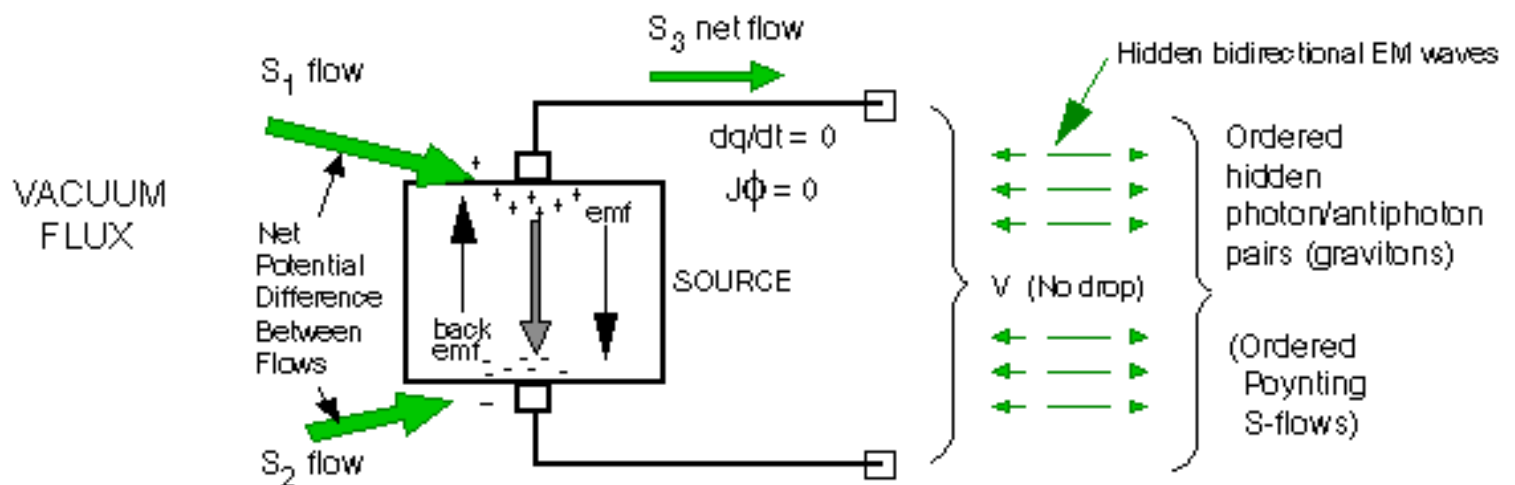


Figure 12b. In a conductor with  $dq/dt$  blocked;  $S$ -flow and hidden Whittaker-wave flow continue.

## Figure 12. Overt and covert field energy density flows.

Normal sources do not furnish electrons and current to a circuit anyway. Sources just furnish Poynting flow  $S$  and EMF. [\[note 16\]](#) In the receiving current loop, the EMF appears automatically once the  $S$ -flow flows in and is "locked on to" by the receiving electrons. Given  $q^{**}$ , you will immediately have  $J^*$  if the electrons are free to move in the conducting circuit ([see Figure 13](#)). Further, you have eliminated all the loss terms from the standard Poynting equation for energy losses. So all the energy flow  $S$  just flows across the SC section, without any current or Cooper pairs flowing through that SC section. The SC section has become a "bridge" which (1) strips off the Poynting field energy density flow  $S$  from the electron current  $dq/dt$  on the sourcing side of the SC/bridge section, by simply reducing the  $dq/dt$  to zero; and (2) continues to pass the  $S$ -flow across the  $dq/dt$ -blocked SC/bridge section to the other side ([Figure 14](#)). The excess  $S$ -flow (and EMF) pours into the receiving  $dq/dt$ -isolated current loop, exciting the electrons therein to produce  $dq/dt$  and  $J^*$ . *Any closed current loop is self-powered, once it receives  $S$  and EMF. It furnishes its own electrons; it only requires excess energy and EMF.* [\[note 17\]](#)

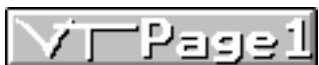
So our approach gives room temperature superconductivity in a very straightforward manner, once you discover how to block the current  $dq/dt$  in a conductor. Blocking it in an insulator is not sufficient, because that drops the potential and stops the  $S$ -flow and the equipotential \* (the EMF). However, a degenerate semiconductor such as the Fogal chip can be used, as can several other processes for blocking  $dq/dt$  in a conductor. We will discuss these in a future article.

Another advantage of this approach to room temperature superconductivity is that now one can also have permissible overunity coefficient of performance. Now the load can be placed in its own  $S$ -receiving, isolated current loop. With the sourcing current loop furnishing only  $S$  and not  $dq/dt$ , the load is still powered normally in its own closed  $dq/dt$  current loop, but none of the load current is passed back through the back EMF of the primary source in the sourcing circuit.

This principle -- that at least a substantial portion of the load current must not pass back through the primary source -- is the primary principle required for a permissible overunity electrical machine ([Figure 15](#)). A permissible overunity electrical machine is one which produces more power in the load than you have to put into the machine to run it.

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[16] E.g., see Robert L. Shrader, *Electronic Communication*, Sixth Edn., MacMillan/McGraw-Hill, New York, NY, 1991. (1993 Imprint). Quoting from p. 6: "A source of electric energy does not increase the number of ~ree electrons in a circuit; it merely produces a concerted pressure on any aimlessly moving electrons."

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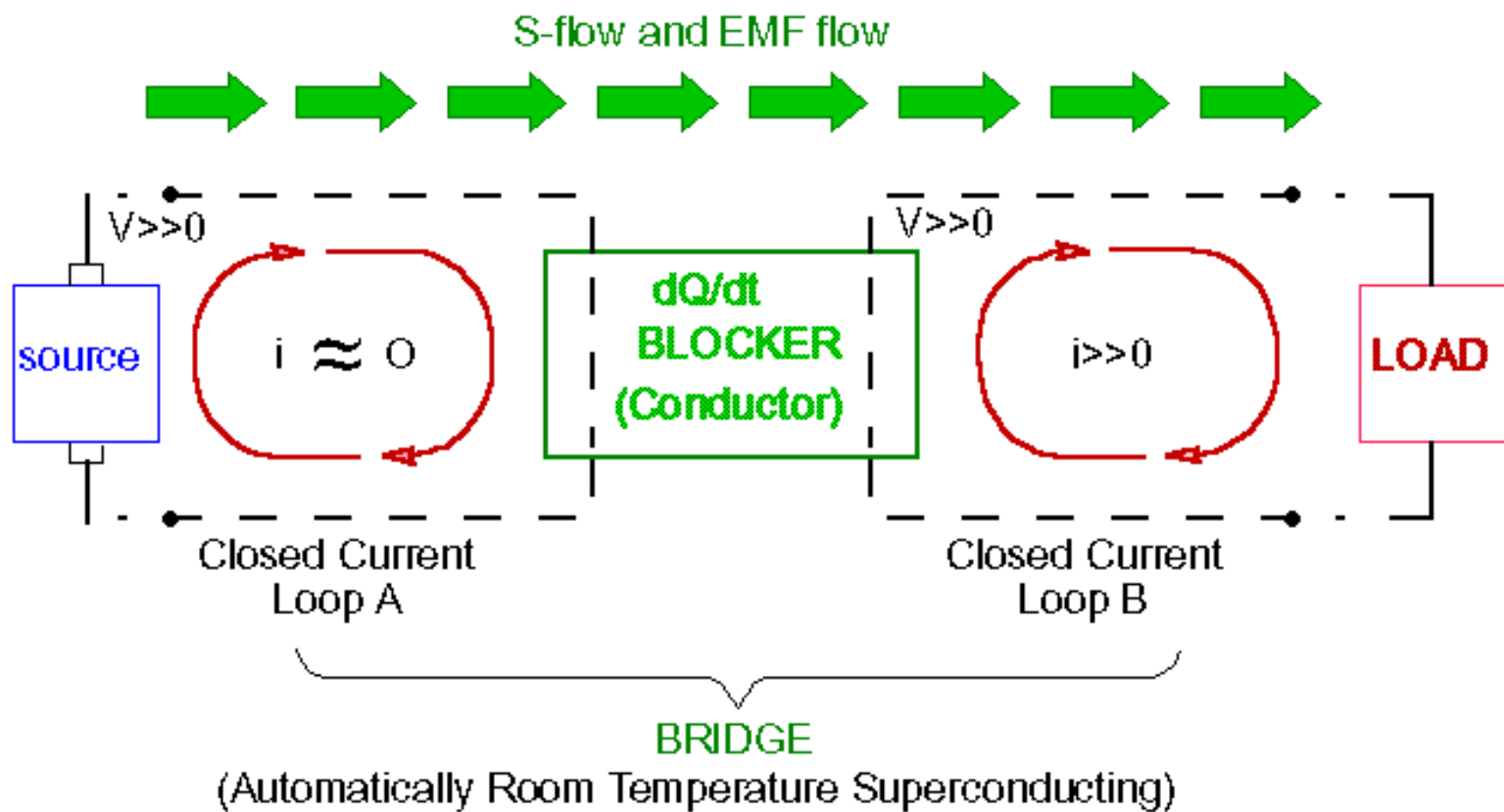
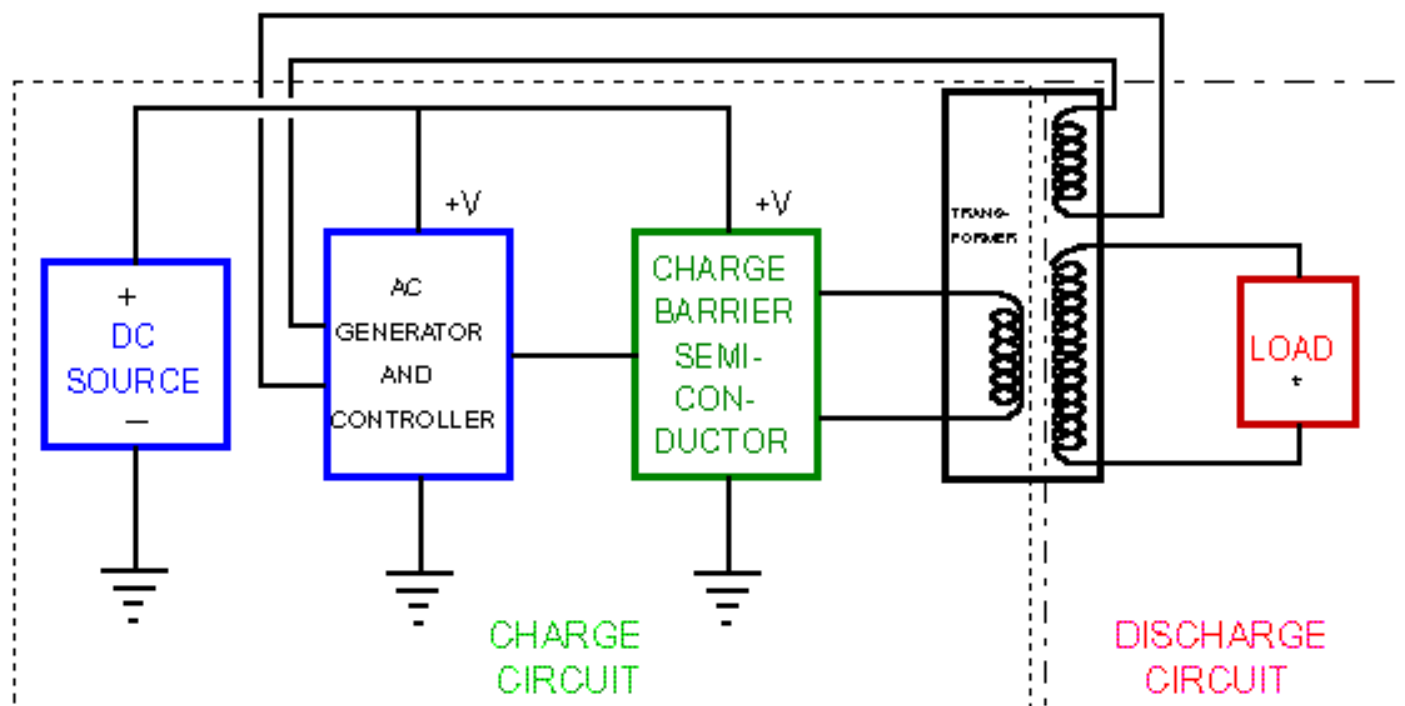


Figure 14. Bridging to enable room temperature superconductivity.

[17] My own approach has been, if that's all that the circuits require from our primary power source, then let's simply accept that directly from the source without performing any work in the source. Iœ you do it this way, the source is never dissipated, but will last indefinitely. Sources furnish flowing field energy density, not "energy" per se. If you only demand S-flow, you can have all you wish from a source, without exhausting your source. The trick is to find how to steadily dissipate some of this "artesian well" of flowing S to drive electrons through the load, but without driving electrons back through the back EMF of the source.

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Patent Pending

<sup>\*</sup> NOTE:

DISCHARGE CIRCUIT AND LOAD GROUND

MUST BE ISOLATED FROM THE

CHARGE CIRCUIT GROUND.

FEEDBACK LOOP MUST BE RIGIDLY CLAMPED AND LIMITED.

Figure 15. Use of Fogal semiconductor for overunity (closed system).

Obviously, the laws of physics and thermodynamics require such an overunity machine to be an open system that extracts and utilizes excess energy from an external source. In the case outlined, we extract the excess energy directly from the vacuum in the form of S-flow; essentially we convert our primary source to a Poynting generator rather than a "power" (energy flow loss rate) generator. The resulting overunity machine accomplishes both room temperature superconductivity and also overunity coefficient of performance ([Figure 16](#)). It does not violate the conservation laws of physics. It does not violate the second law of thermodynamics because it is an open system receiving and utilizing excess energy from the vacuum, and the second law need not apply to such systems. [\[note 18\]](#)

You see, all power systems are already free energy density flow sourcing systems, if we but use them correctly. Every dipole is a "gating device" for extracting excess field energy density flow from the violent bidirectional flux exchange between the vacuum and each end of the dipole. [\[note 19\]](#) [\[note 20\]](#) When we attach "conducting leads" to a dipolar source, as in the simple two-wire circuit, all we are doing with the conductors is providing waveguides for the extracted S-flows from the vacuum to flow along (it flows outside the conductors) without loss. In effect, each lead is simply extending the pole (i.e., the terminal) to which it is connected.

My associates and I are also working on several other inventions at present, including two more patent applications to be filed in the near future. One of those is in the field of overunity power systems, while the other is in an entirely different, highly proprietary nuclear effort. I will address all these areas in future columns, and those columns will have real "meat" in them.

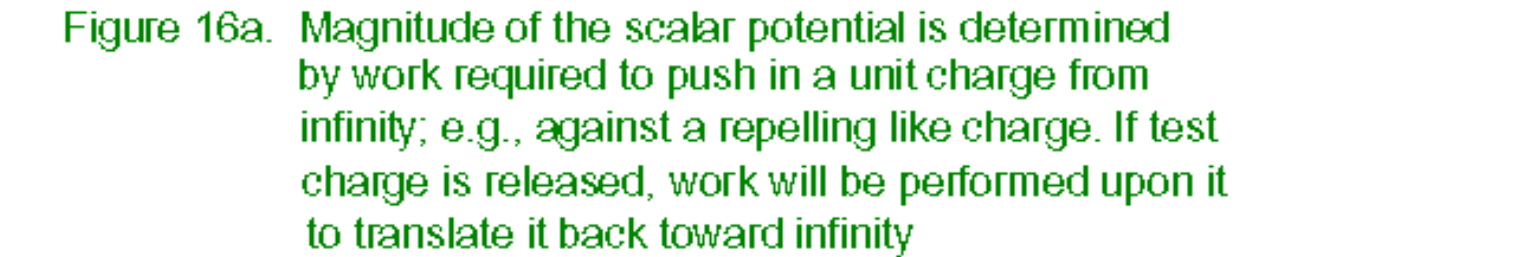
Present "big science" proclaims that overunity electrical machines are impossible. The reader should understand that the U.S. Patent and Trademarks Office is never going to grant a patent for an overunity electrical machine unless the machine is independently tested and replicated, and unless it is certified by scientists of impeccable credentials. This is as it should be. Legitimate free energy researchers accept that dictum. Eventually the stuff has to work on the bench in order to be validated. On the other hand, free energy researchers also point out that one must not demand of us the next 100 years of national research by a hundred major laboratories immediately! This is still a shoestring operation, because all conventional sources of research funds are denied to the serious overunity researcher (with the single exception of occasional personal funding of a researcher by a private individual). In other words, we demand at least the same kind of consideration that the orthodox nuclear fusion community has enjoyed. Billions of dollars have been poured into that sinkhole, and not a single controlled fusion power unit is working anywhere in the world after decades of work at enormous expense to the taxpayers.

So we overunity researchers deserve at least a decade or two of our own, to try to accomplish overunity electrical system development. We also painfully point out that "Big Science" will not fund a single overunity researcher, for specific overunity purpose, no matter what his credentials or capability. In fact, "Big Science" is part of the problem, because it fervently seeks to prevent any legitimate research in overunity. To carry out its suppression campaign, it resorts to vilification, character assassination, libel, and slander of the overunity researchers themselves \_\_ again, regardless of their qualifications or legitimate scientific procedures. [\[note 13\]](#)

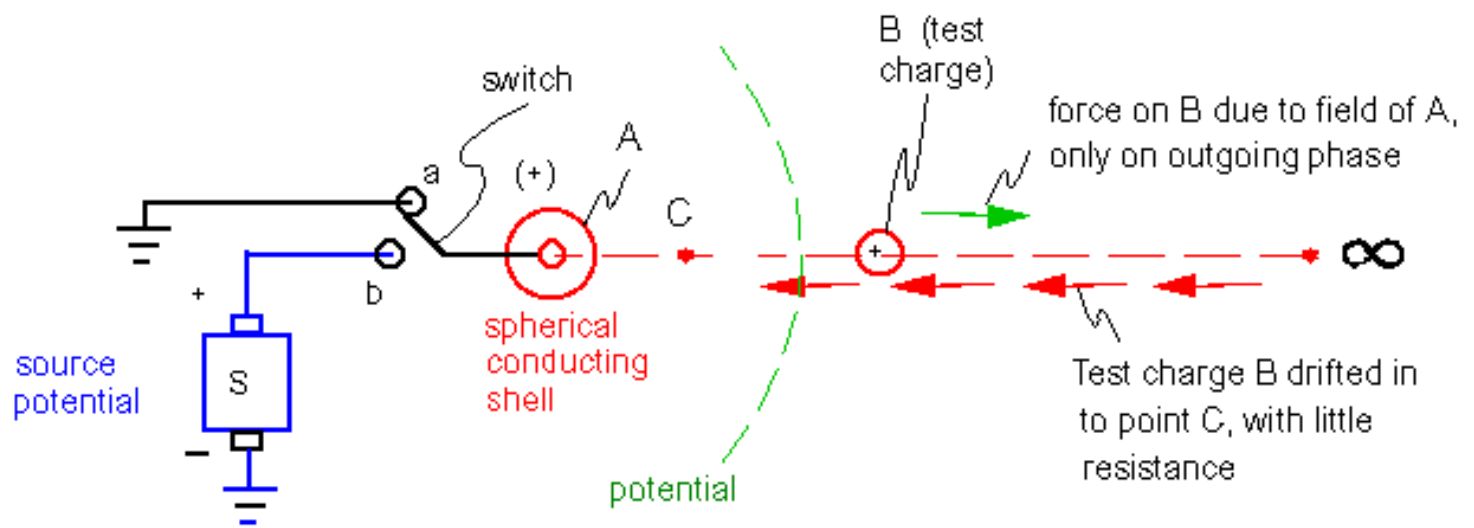


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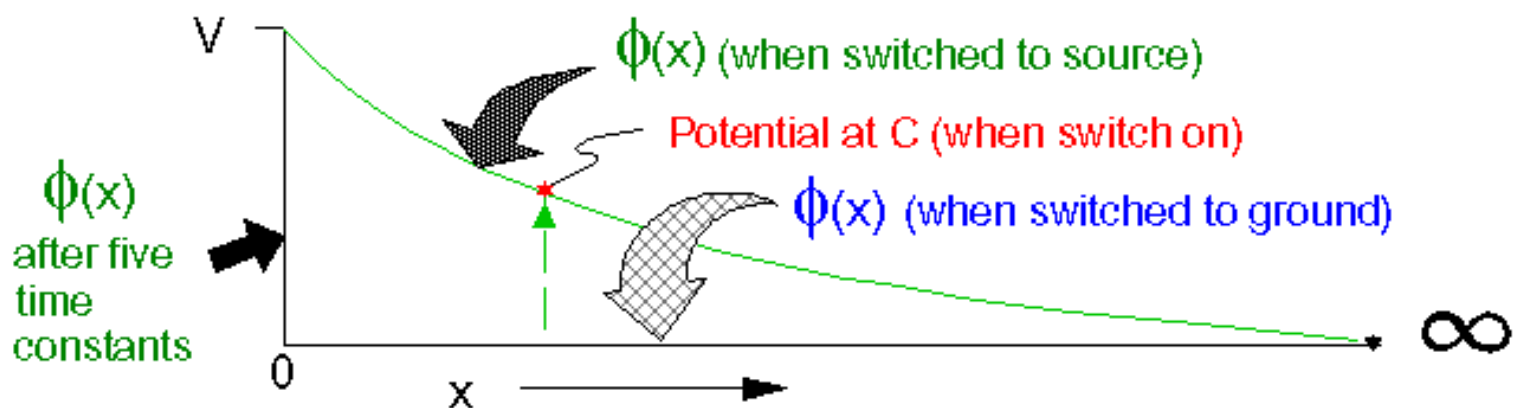
Assumptions: Capacitance of A very small; charge B large, power-free switching

Switch potential off, drift in test charge B, switch potential back on. Can now get free work from repelled test charge B. Get much more free work if A is at a high potential, and charge B is large.

Figure 16 b. Demonstration of overunity efficiency.

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Ideally, switching the potential, rather than flowing charges, requires only minuscule overhead energy dissipation

Figure 16c. Potential to which test charge is exposed.

D-1-F16C

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[18] The system does comply with the nonlinear thermodynamics of a system far from equilibrium. E.g., Prigogine received the Nobel Prize for significantly developing this new field. For a detailed technical presentation of nonlinear thermodynamics of a system far from thermodynamic equilibrium, see G. Nicolis and I. Prigogine, *Exploring Complexity*, Piper, Munich, 1987. Such systems can exhibit negentropy, self-organization, and other effects outside the confines of classical thermodynamics. Since local symmetry is broken, they can also permissibly exhibit overunity coefficient of performance.

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[19] Each end of a dipole has its own potential (with respect to the local vacuum), which differs from the potential of the surrounding ambient vacuum. For each of these "end-potentials," one can mathematically decompose that end-potential into a hidden bidirectional set of harmonic wavepairs in harmonic sequence. Each wavepair consists of the wave and its phase conjugate. For the proof, see E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355. Since one of the dipole potentials exceeds the local vacuum potential and the other dipole potential is lower than the local vacuum potential, the two bidirectional EM wave flows are at or "carry" different equipotentials. This is the generatrix for the automatic dual flow of energy from the vacuum through the dipolar power source and out along the two leads of the "transmission line" conducting the S-flow to the components of the circuit for powering the loads. So as can be seen, rigorously every dipole is already a "free energy source" if we learn how to properly use it. The energy will flow forever, if we do not allow the destruction of the sourcing dipole.

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[20] See also E.T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Here Whittaker shows that the fields of classical electromagnetics can be replaced by scalar potential interferometry of two potentials. Our own comment is to note that by Whittaker 1903, we can with a little difficulty make artificial potentials with deliberate substructures. We can then interfere those potentials (actually, interfere their hidden multiwave structures) even at a distance, to create new EM fields. Or we can dissolve EM fields that exist at a distance, simply by constructing the correct negative EM fields by distant scalar interferometry. My point is that, when we utilize the "inner" electromagnetics inside the potential, we are employing a vastly more powerful electromagnetics of a new kind, which includes and extends the present inadequate EM theory.

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Indeed, orthodoxy has a black record with respect to energy. When Mayer advanced the conservation of energy law, orthodoxy hounded him unmercifully. He was universally ridiculed as the very epitome of a fool. He lost his job and suffered a nervous breakdown. Then years later toward the end of his life, scientists came to accept the conservation of energy as a most useful tool that dramatically simplified much of their analyses. So then science began to laud Mayer. There are a thousand other such examples; suffice it to say that "big science" is a bureaucracy and a "bell-shaped distribution curve" just like any other large group of people. Some scientists are near-angels. Others are near-devils. The vast majority are neither, but are just ordinary persons doing a special kind of job. In the scientific bureaucracy, however, the manipulative scientists scurry, slash, and manipulate their way toward the top. So the leadership of any big bureaucracy — including the scientific bureaucracy — is always rife with such near-scalawags and power-hungry individuals. Scientists are not exceptions to the same human weaknesses that we all evidence. If you really want to see jealousy, backbiting, and fierce "back-room dealing" and power-struggling, just get into a university research environment! But because the "power merchants" of any bureaucracy always fiercely resist any challenge to their position or superiority, big science has always fiercely resisted anything truly revolutionary. And today they also enlist the power of the state to enforce their dictums. We will devote one of our future columns to pointing out some glaring examples of persecution of independent researchers by big science. It is an area that all unorthodox researchers should be well-aware of. The world of science does not run by sweet reason and lofty ideals; that is just the dogma. It runs strictly by "who's going to be the big monkey," just like everything else. Primate dominance is still a dictum of the functioning of all bureaucratic human systems.

The free energy researchers are not working on the so-called "perpetual motion machine," where a closed system is erroneously stated to produce more output than must be put into it to operate it. That old saw is actually a red herring that dogmatic scientists use to vilify free energy researchers. It is a lie that they have also successfully sold to the U.S. Patent and Trademarks Office. Anyone with a modicum of knowledge of modern physics already knows that there does not exist a single closed system in the universe, anywhere. In particular, every physical system is continuously "open" to the violent exchange of energy with the surrounding vacuum. It's just that most systems are in local equilibrium in these flow exchanges, except for minuscule gating accomplished for such things as the Lamb shift, etc.

By analogy it's something like this. The free energy researcher is standing by the banks of a mighty, rushing river with breathtaking falls, turbulent areas, etc. Big Science is begrudgingly admitting that, yes, there is a river there, but it is an insane delusion to think that you can tap that energy. The free energy researcher is saying that, well, if I can build a gating sluice a little distance upstream, perhaps I can divert a small portion of the river's flow downstream to my waterwheel, and power my mill. The orthodox scientist then vilifies the free energy researcher for even having such a heretical thought. In fact, says the orthodox researcher, any fool can see that the laws of nature force the river's flow to stay firmly in its banks, because it is a closed system, and Moses brought that law down off the mountain with him on a special stone tablet. Then he adds all the other smug remarks such as, "If it could be done, then we at MIT and Harvard and Caltech would already have done it!" So until the orthodox scientist develops a little less dogma and a little more common sense, and learns the difference between a scientific discussion and a dogfight, the free energy researcher can hardly communicate with him.



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The goal of the legitimate free energy researcher is to find a way to break the local equilibrium of this universal energy exchange, and gate a tiny bit of it up into the external circuit as excess electrical energy ([Figure 17](#)). Then he must collect the excess energy, and shuttle it from the "gating and collecting circuit" over to a  $dq/dt$ -closed current loop containing the load. He must also prevent the load current, or most of it, from passing back through the primary source against its back EMF, because if it does that, he will destroy the separation of charges in the dipolar source, killing the dipole and extinguishing the "excess energy gating." In other words he must find a way to process and transport the energy flow across  $dq/dt$ -blocked bridges between the source's closed  $dq/dt$ -current loop and the load's closed  $dq/dt$ -current loop. Ruthlessly it is an energy transport S-flow problem, not a  $J^*$  energy transport problem. If he uses  $J^*$  in his sourcing current loop, he automatically drives the current  $dq/dt$  back through the back EMF of his source and kills it. If he does not drive  $dq/dt$  back through the source, the source will furnish S-flow for an indefinite period! Every battery and generator we have ever built is already a "free energy" machine in that it already involves broken local symmetry in the vacuum energy exchange. We have just not realized how to use our power sources purely as Poynting S-flow sources.

So we must treat an electrical system as an open system with broken local symmetry ([Table 3](#)) in the vacuum flux exchange, so that the system extracts (gates) excess energy from an external source. In this case the source is the system's flux exchange with the vacuum. This approach is no more mysterious or bizarre than putting a waterwheel in a river, or a windmill in a wind, or a bank of solar cells out in the sunshine. The universal "free source of energy" that the overunity researcher seeks to tap is the violent exchange of virtual photons between the electrical charges of the system and the surrounding quantum mechanical vacuum ([Figure 18](#)). In quantum physics this powerful, energetic exchange of the vacuum with electrical matter is now proven both experimentally and theoretically. It is already accepted in quantum physics that the vacuum is filled with electromagnetic energy. The researcher doesn't have to prove it anymore; he just has to find out how to properly use it. The artesian well is already there; we just have to learn how to collect and use the flowing water without dynamiting the well!

The remaining objection orthodox scientists usually raise against the notion of extracting vacuum energy has been that "thermodynamics doesn't permit it." However, Cole and Puthoff have rigorously shown that, on the contrary, the theory of thermodynamics does not prohibit the vacuum's energy being extracted and used to produce heat, light, and power. [\[note 22\]](#) So the validity of that final objection has now vanished.

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*Open system receiving excess energy from an external source*

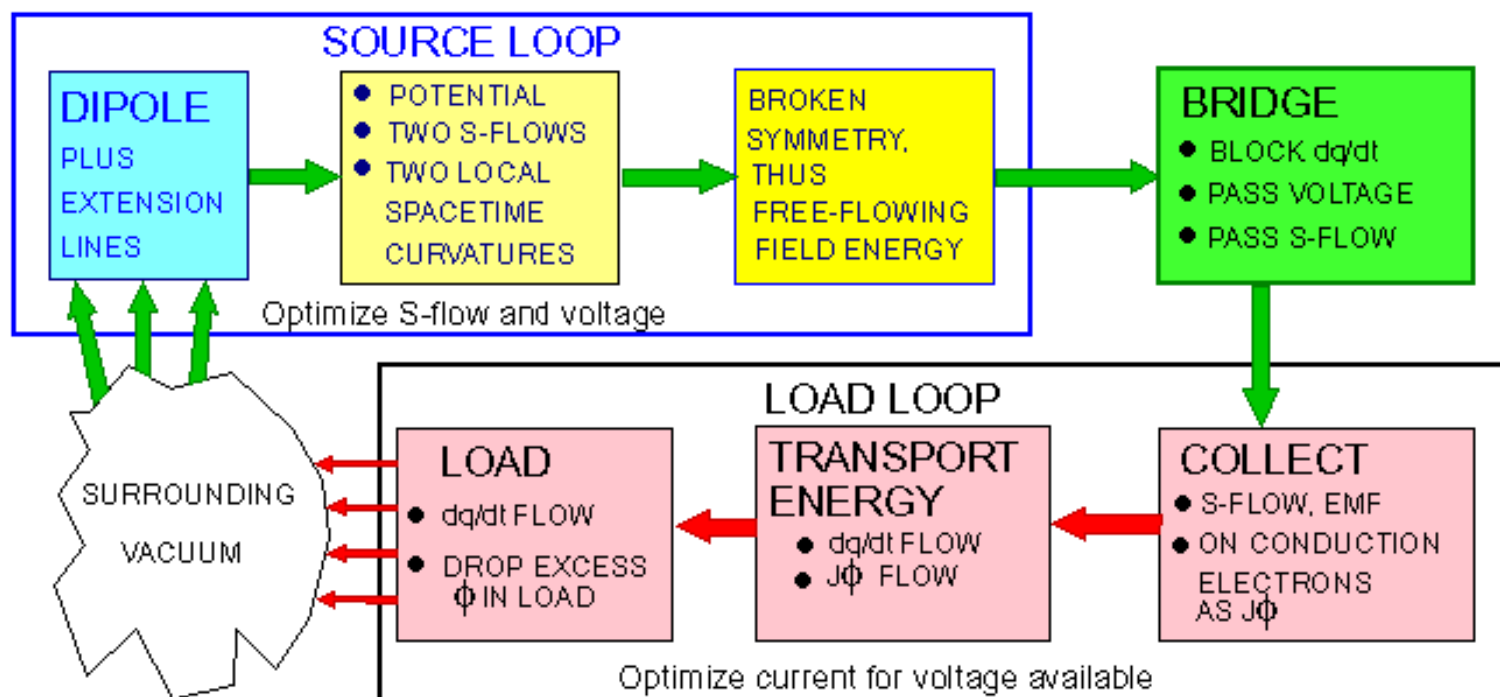


Figure 17. Operation of an overunity electrical power system.

Table 3: Asymmetry and modern physics.

Per T.D. Lee, Particle Physics and  
Introduction to Field Theory,  
Harwood Academic Publishers,  
New York, 1981, p. 378-390.

### SYMMETRY AND MODERN PHYSICS

- Missing symmetry of matter
- Symmetry only of mass and vacuum
- Vacuum excitation
- Vacuum structures
- Spontaneous symmetry breaking
- Interaction between matter and vacuum
- Possibility of vacuum engineering

### SOME PROVEN ASYMMETRIES

- Positive and negative signs of electric charge
- Time reversal
- Right/left handedness

### STRONG LOCAL ASYMMETRY

- Properties of object may differ appreciably for:
  - Different observers
  - Different detecting means
  - One time to another
  - One position to another

### STRONG LOCAL ASYMMETRY (CONTD)

- Local spacetime is curved
- Lorentz invariance of vacuum violated
- May be local sink or source
- EM gravitational/inertial effects
- Translation between virtual and observable
- Electrogravitational solitons
- Action at a distance
- Transmutation effects may exist
- Scalar/pseudoscalar field translation

### WHEN SYMMETRY IS VIOLATED

- A "non-observable" turns out to be an observable
- An invariance is broken
- A conservation law or selection rule is broken

### COMMENTS:

- A virtual object becomes an observable object
- Local spacetime becomes curved, at least to some potential involving that object

# A Charged Particle Is a Coupled System

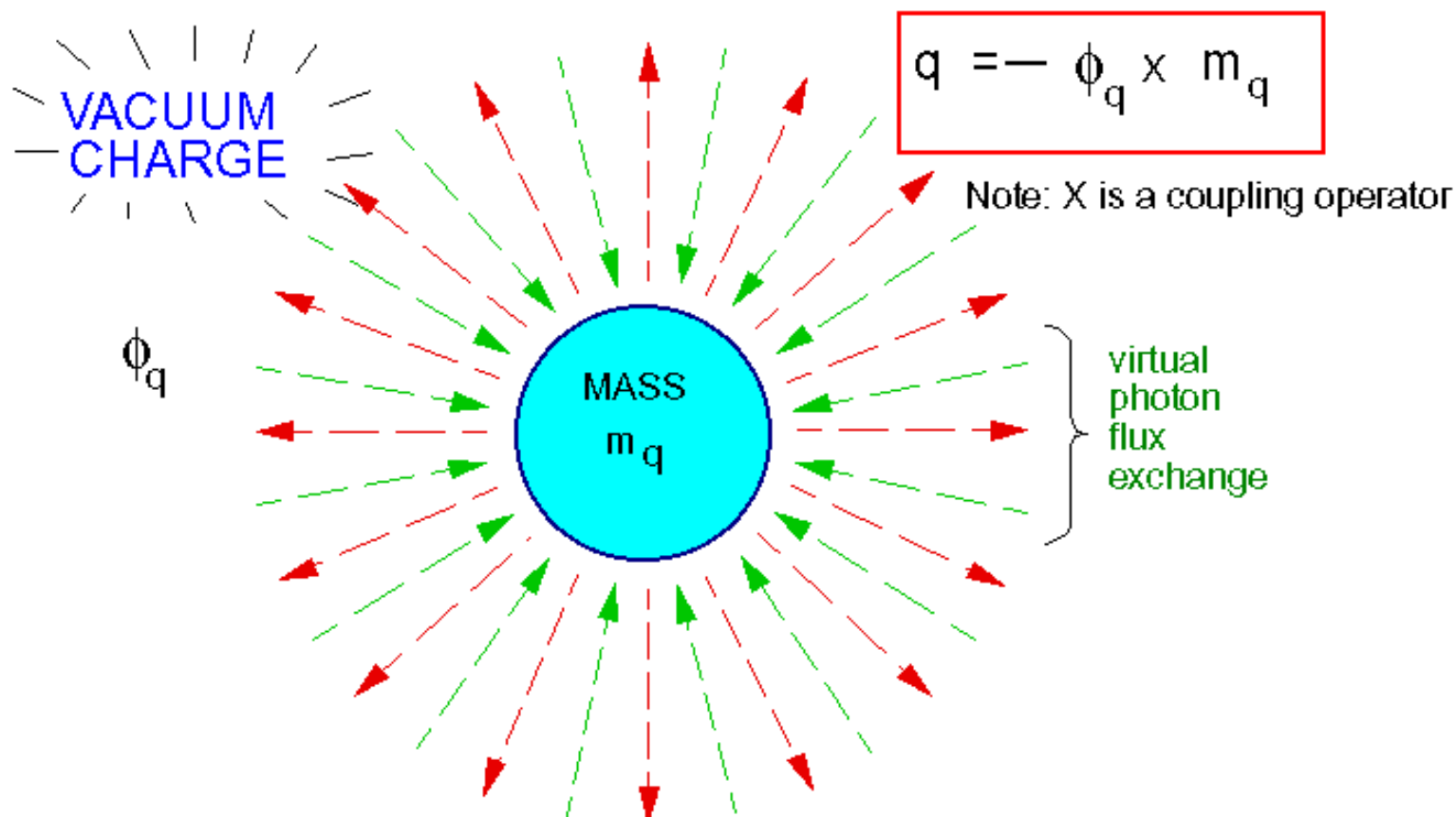


Figure 18. An electric charge  $q$  is a broken symmetry. It continuously and violently exchanges energy with the vacuum.



[22] Cole, Daniel C. and Harold E. Putboll. (1993) "Extracting Energy and Heat from the Vacuum," Physical Review E, 48(2), Aug. 1993, p. 1562-1565.

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And there is mind-numbing energy density there in the vacuum, waiting to be extracted. The well-known Lamb shift, e.g., in a single hydrogen atom is due to that vacuum exchange. [\[note 23\]](#) Interestingly, the calculated energy density of the exchange causing the Lamb shift is greater than the surface energy density of the sun. Different physicists have made various theoretical estimates of the energy density of this seething vacuum. A conservative ballpark figure is something on the order of 1090 grams per cubic centimeter, expressed in mass units.

It has also been my good fortune to know and work closely with several other free energy researchers. I was a colleague of Floyd ("Sparky") Sweet (recently deceased) for about seven years; Sparky held a Master's degree in EE from MIT and had years of experience with General Electric and other firms. He was a highly skilled researcher who invented the solid state vacuum triode amplifier ([Figure 19](#)), a unit which produced 500 watts of output and a coefficient of performance of 1,500,000. I personally tested the machine, activated the magnets on one occasion, and understand how it all worked. [\[note 24\]](#) The paper [\[note 25\]](#) I co-authored in 1991 with Floyd is still the only paper in the orthodox engineering literature that reports (a) successful overunity functioning of a solid state magnetic device, and (b) a successful antigravity experiment on the laboratory bench, reducing the weight of an object by 90%. [\[note 26\]](#)

We stress again that a legitimate overunity electrical machine must be an open system, receiving excess electrical energy from the surrounding vacuum. As such, it must operate in a higher topology than normal electrical machines ([Figure 20](#)).

My good friend Frank Golden has long been a close colleague. Years ago Frank developed a motor that produced overunity efficiency, but then to our astonishment we found (courtesy of Bill Tiller, [\[note 27\]](#) with whom we were working at the time) that its operation depended upon a 5-year-long conditioning (structuring) of the local ambient potential in order to work. Previously we had been entirely unaware that one can sometimes condition the local vacuum and the local matter in the area with a particular dynamic form. Given the local conditioning, a motor with that form will then work in that vicinity, but not necessarily elsewhere at an appreciable distance away. We now understand the mechanism for such "conditioning of the vacuum." We also now know what to do if an overunity machine is actually a machine of that type (many of them are not). In other words, we know how to convert it to a machine that will work anywhere, anytime. We will be addressing such little-known things in future articles.

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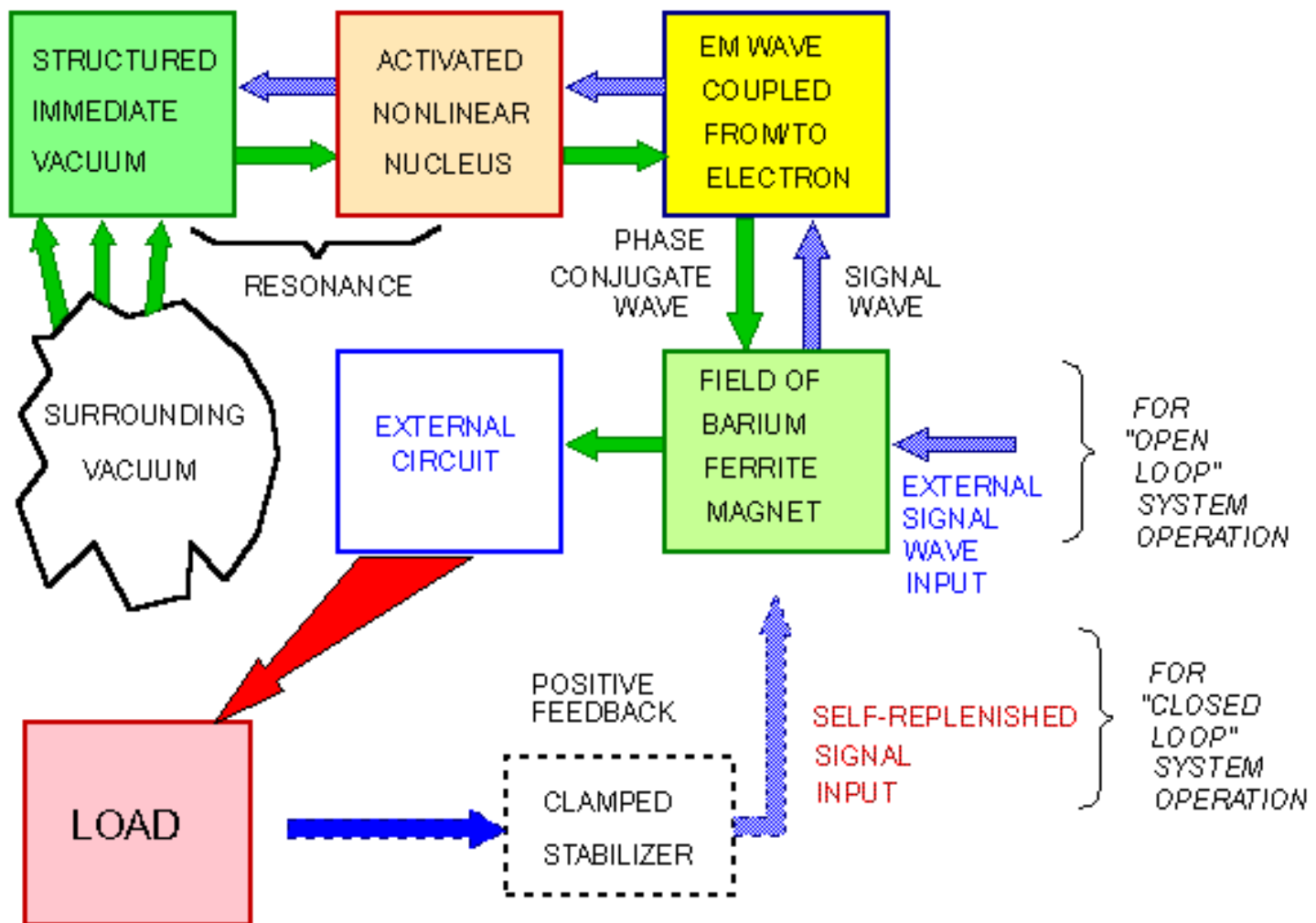


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[23] Lamb, W.E. Jr. and R.C. Retherford. "Fine structure of the hydrogen atom by a microwave method." *Physical Review*, Vol. 72, 1947, p. 241-243. Lamb received the Nobel prize for this work.

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**Figure 19. Block diagram of the Sweet Vacuum Triode Amplifier.**

Adding positive feedback circuit enables self-oscillation.

[24] Unfortunately Sweet made conflicting agreements with multiple backers, resulting in a most thorough legal foul- up. It appears that nothing can ever be done with this machine, because its status is a legal nightmare.

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[25] Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Boston, Massachusetts, 1991, p. 370-375. Paper also distributed over Internet.

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[26] The unit was specially rigged and "pushed" to 1,000 watts output to perform the antigravity experiment.

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## Example: Conservation in 2D versus 3D topologies.

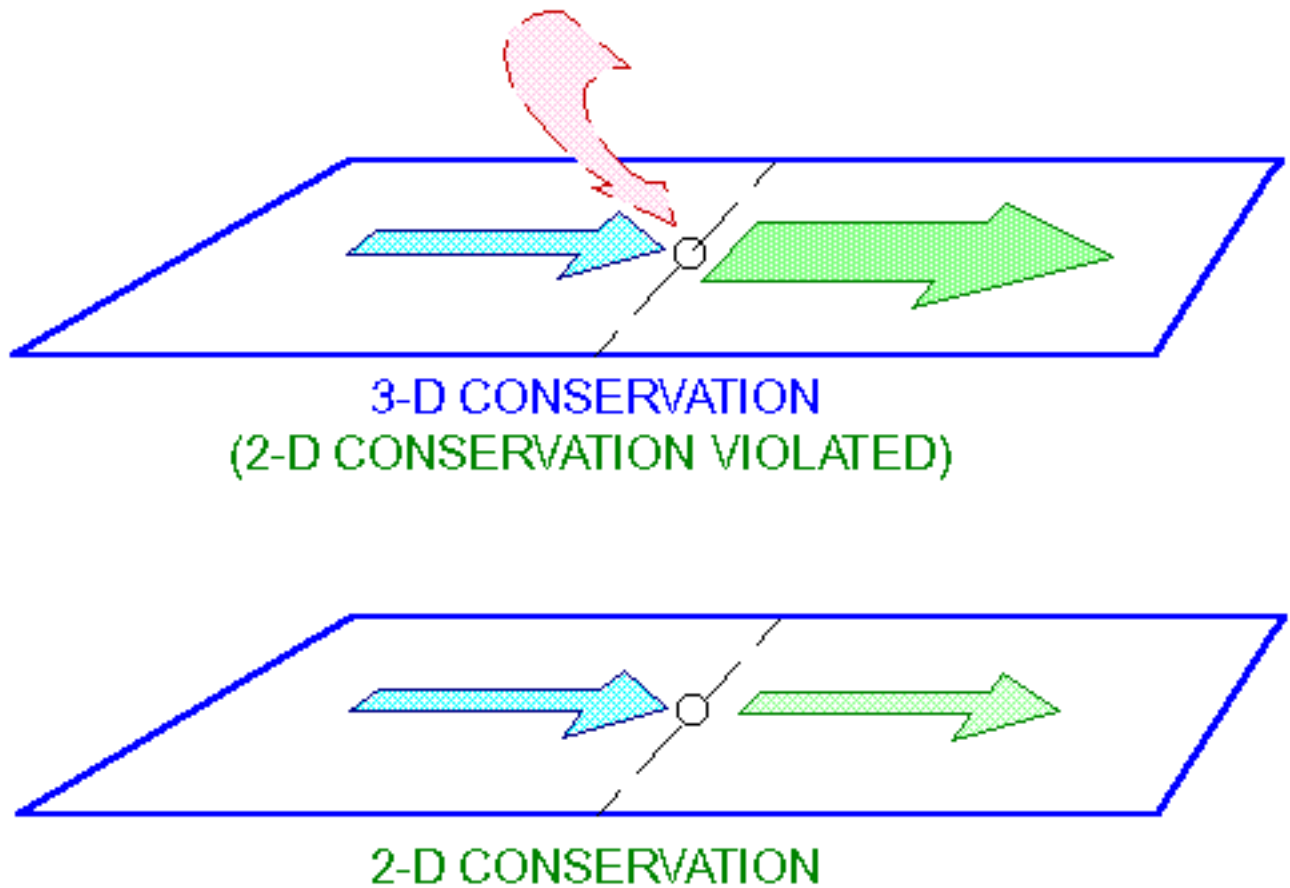


Figure 20. Increasing the dynamic topology allows lower topology conservation laws to be violated. Conservation now applies in the higher topology, but not necessarily in the lower. The lower topology system is now an open system and may seemingly act as a source or sink.

[27] Tiller was already familiar with the fact that devices that function by more subtle energy often require special conditioning of the vacuum spacetime. He expressed it as "an archetype must first be created for the machine to function efficiently." Tiller had previously experimented with such an effect for several years.

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John Bedini is also a close friend and colleague; John built several experimental motors (both electrical and magnetic) in the overunity area, and performed successful trans-mutation experiments. John is a recognized genius in high-end sound amplifier development. Many audiophiles worldwide still swear that the Bedini amplifier is the best and sweetest-sounding audio amplifier ever built. One of John's battery-powered electrical motors ([Figure 21](#)), for example, ran continuously off its battery for about five years, and kept the battery charged. When you realize that such a small electric motor is only about 35% efficient, then you realize that about 65% of the energy flowing out of the battery was being dissipated in the motor as heat, core losses, etc. So the unit was continuously performing work for that five years. [\[note 28\]](#) The 1/8 hp motor represented a load in which the continuous rate of work being done (the rate of energy dissipation) was about 0.08 hp. We will have more to say on this motor and its technical process in a future article.

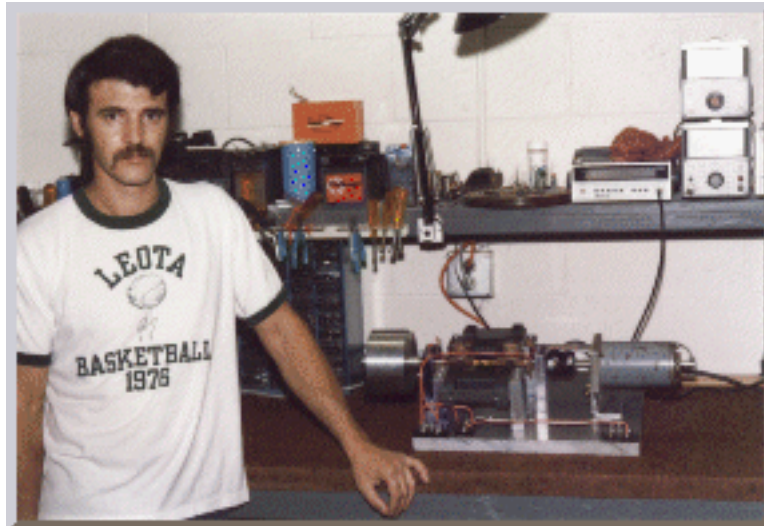
Bill Fogal is a close colleague; Bill has patented the world's first dq/dt-blocking semiconductor, [\[note 29\]](#) which partially blocks the normal current while continuing to pass the flow of voltage ([Table 4](#)). I have written a proprietary technical explanation of the Fogal semiconductor, which utilizes an extremely little-known feature called the "overpotential." The overpotential part of the theory is experimentally proven and theoretically explained in an obscure part of electrochemistry, by a few chemists who specialize in electrode effects. J. O'M. Bockris is probably the leading world expert in overpotential theory; he authored the textbook on it. [\[note 30\]](#)

One of the latest overunity developments is the magnetic resonance amplifier (MRA) developed by Joel McLain and Norm Wooten ([Figure 22](#)). Earlier testing disputed the overunity functioning. More recent testing at several well-known laboratories has resulted in the instrumental measurements clearly showing overunity. While the test institute scientists themselves may be willing to attest to overunity results of their testing, none of the corporate heads will allow it. I have personally stated that the MRA is capable of overunity. Our own measurements had to be discarded because we did not have the proper instruments available. E.g., all our oscilloscopes were "hard grounded" to building ground, and we needed to make "floating differential ground" measurements in order to settle things once and for all. McLain and Wooten have filed for a patent, and multiple tests with excellent equipment have indeed indicated overunity. What happens next remains to be seen. I suspect that the two inventors may simply accept foreign capital investment and go offshore.

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**WARNING:** Highly dangerous operation. Pulsed battery outgasses hydrogen gas and explosion is possible.



Open system using higher topology extraction of excess vacuum energy. Uses sluggish reversal and recoil time of lead ion onrushing current versus rapid backlash of amplified voltage discharge from a magneto ignition coil, to force the battery to act as an excess S-flow collector during the ion-current charging half-cycle. Thus the inefficient motor is continuously powered and the battery is continually recharged.

**Figure 21. Bedini's battery-powered, back-popping electric motor.**

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[28] We strongly emphasize that there is no conservation of work law in physics! It is the overall energy of the universe that must be conserved, not work. More rigorously, the flow of energy must be conserved. But from a free flow of energy, you can continuously extract a little and dissipate it as work, without cutting off the main flow and without violating any of the laws of physics. If this were not so, then waterwheels, windmills, and solar cells would not work. In fact, you can even do better than that. The basic energy conservation law is this: Energy can neither be created nor destroyed. So even when you "use" (i.e., dissipate or scatter) the energy, it is still there. It is only the hierarchical ordering of the photons that constitutes entropy. Each individual photon is perfectly ordered and still contains all its energy. By retroreflection, you can even cause those disordered photons to gather back in your system into perfect order once again and then you can scatter them again to do some more work. You can use the same energy over and over again! The perfect retroreflection is more easily accomplished by phase conjugate reflection. For a vivid example of just such retroreflection of previously scattered EM energy to restore the former order, see David M. Pepper, "Applications of Optical Phase Conjugation," *Scientific American*, Vol. 254, No. 1, Jan. 1986, p. 74-83. See particularly the striking photographic demonstration of time reversal of disorder on p. 75.

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[29] William Jay Fogal, "High gain, low distortion, faster switching transistor." U.S. Patent No. 5,196,809, Mar. 23, 1993. Also William J. Fogal, "High Gain, Low Distortion, Faster Switching Transistor." U.S. Patent No. 5,430,413, July 4, 1995.

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Table 4. Fogal's Semiconductor.

## FOGAL'S CHARGED BARRIER SEMICONDUCTOR

- **BLOCKS ELECTRON CURRENT FLOW  $dq/dt$** 
  - **AS CAPACITOR CHARGES, ELECTRONS IN EMITTER JUNCTION ATTRACTED TO PLATE**
  - **CHARGING PLATE PRODUCES HIGH BARRIER VIA PROPRIETARY MECHANISM**
  - **AC CONDUCTION ELECTRONS CANNOT PENETRATE BARRIER**
  - **AC POYNTING FLOW  $S$ ,  $d\phi/dT$ ,  $dE/dt$  PASS THROUGH BARRIER**
- **PASSES POYNTING FLOW  $S = E \times H$ ;  $dE/dt$**
- **SEMICONDUCTOR BECOMES "ENERGY PIPE"**
- **WITH  $dQ/dt$  BLOCKED, FLOW OF  $S = E \times H$  IS NON-DIVERGENT AND WITHOUT LOSSES**
- **FOGAL CHIP UTILIZES  $S = E \times H$  FLOW TO TRANSPORT ENERGY, RATHER THAN  $J\phi$**



[30] In a correspondence with Bockris lasting several years, he had graciously furnished me with material on the overpotential, which is how I found out about this esoteric area. Bockris is well-known as a leading scientist on the chemistry of hydrogen, and also as one of the leading scientists in the rapidly developing field of cold fusion. He is a marvelous scientist, and one day his largely unsung work with the overpotential will revolutionize the entire electronics industry.

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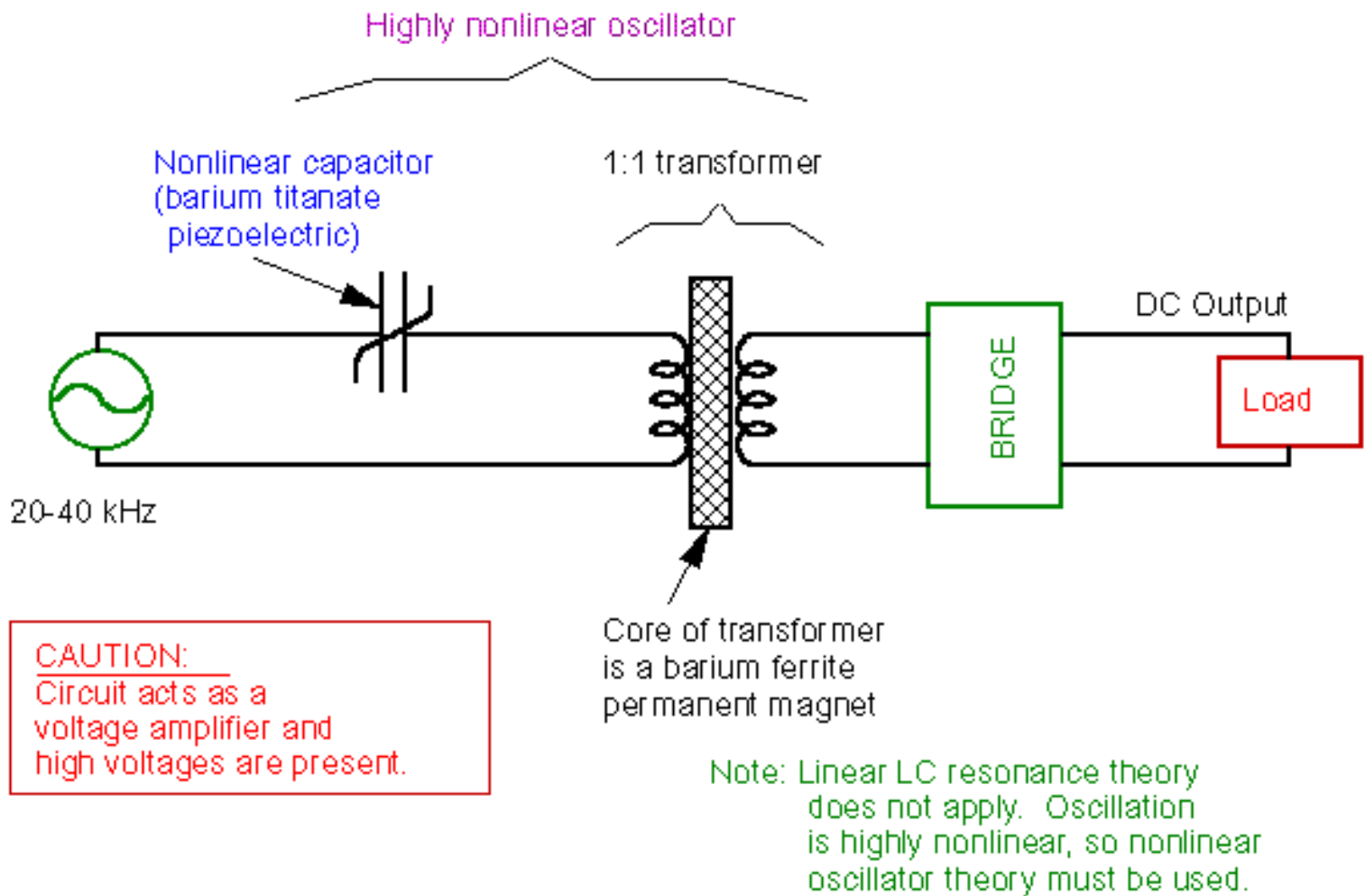


Figure 22. Schema for the magnetic resonance amplifier (MRA).

Howard Johnson is also a respected colleague, whom I very much admire. [\(See Figure 23\)](#). Howard has continued to work quietly and patiently upon his patented permanent magnet motor, [\[note 31\]](#) including patenting various magnetic gates, etc. that are necessary to make such a motor work in a rotary configuration. [\[note 32\]](#) Howard employs a two-particle theory of magnetism; i.e., each magnetic flux line is envisioned as having a particle traveling from the north pole to the south pole, and also a particle traveling from the south pole to the north pole. The particles are spinning; the forward-time particle spins in one direction, and the antiparticle spins in the other direction. Howard then slightly separates the two particle flows. [\[note 33\]](#) In other words, Johnson splits the flux lines themselves, into two different pieces. When so separated, the component lines are now curls, so their paths curve. The paths of the two "curl particles" are different; one curls in one direction and the other curls in the opposite direction. Further, a predominance of one form of curl particle gives a "time-forward" aspect, while a predominance of the other form of curl particle gives a "time-reversed" aspect. Johnson is thus able to employ a deeper kind of magnetism than the textbooks presently contain. He demonstrates that a "spin-altered" magnetic assembly exhibiting (to a compass or other such detector) a north polarity can attract another unaltered magnetic assembly exhibiting a north polarity. In short, he can make a north pole attract a north pole. We will give you further insight into Johnson's two-particle theory in a future article. [\[note 34\]](#) We will also explain how and why the physicists missed that antiparticle in the magnetic field's flux lines, and thereby failed to advance the theory of magnetism to a deeper level. Make no mistake, one day when the new theory is done, Johnson may well be awarded a Nobel Prize for his epochal discovery of a deeper structure of magnetism.

Bits and pieces of the new science approach are just now beginning to spill into a few conventional journals and symposia. For some time a few of the rebels spearheading this new science have been doing something that the University scientists should have been doing all along. The rebels have been meticulously examining the concepts, postulates, and definitions that the present scientific models are founded upon, to reveal serious foundations errors. Corrections for some of these errors have been discovered and made. [\[note 35\]](#) Others are still problems yet to be resolved. Yet slow progress is being made, and a "flip-over" of the old science is likely to occur within the next decade if not sooner. By then the new concepts will have become "solid" enough to allow producing an engineering mathematical model. Also the supporting experiments will have become solid enough to justify the new concepts and the model.

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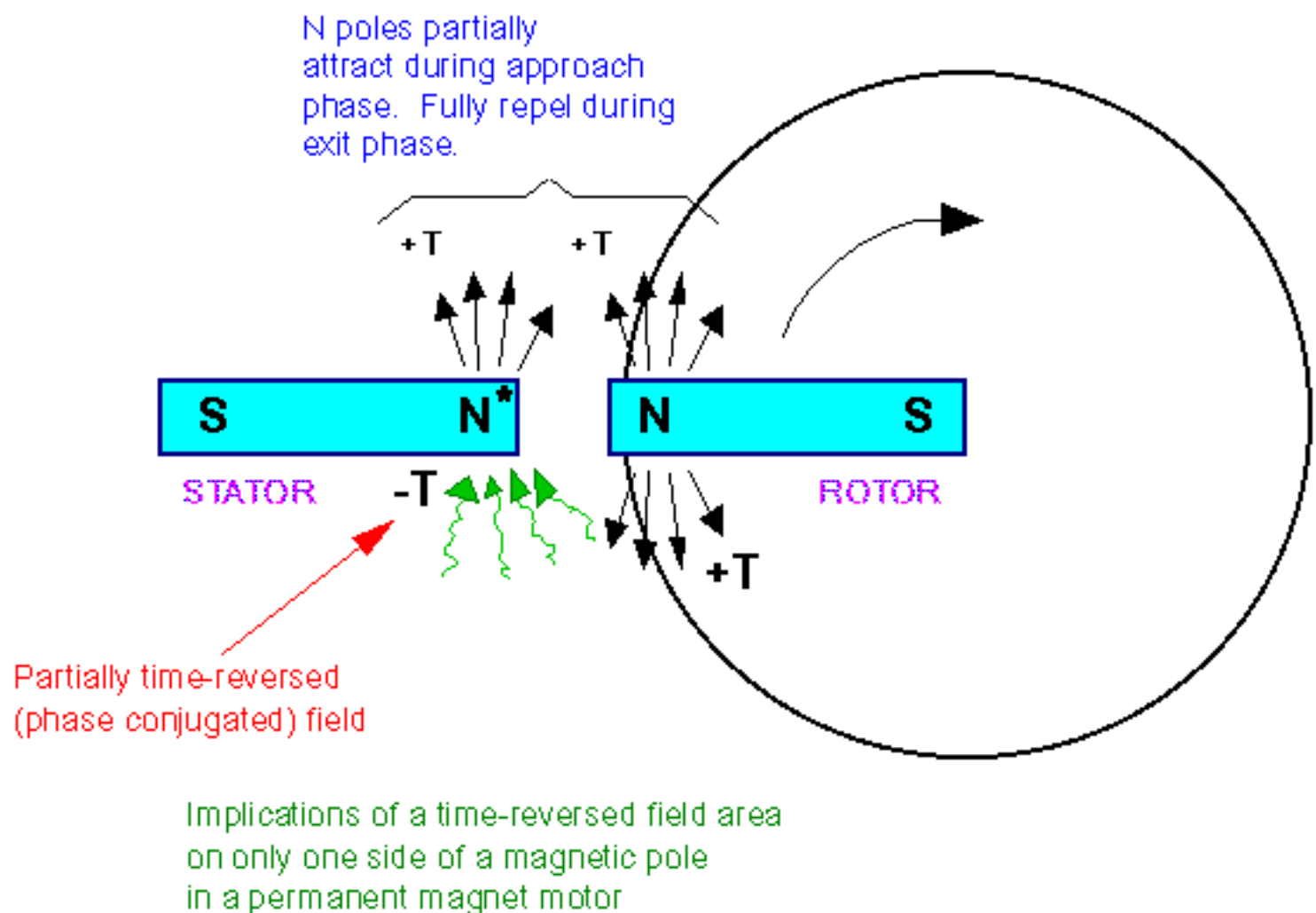


Figure 23. Schema for Johnson's permanent magnet motor.

[31] Howard Johnson, "Permanent Magnet Motor." U.S. Patent No. 4,151,431. Apr. 24, 1979.

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[ [32] I personally saw and closely examined one demonstration rotary Johnson permanent magnet motor some years ago, and toyed with it for about one hour. It would definitely self- rotate as long as you wished to permit it to turn. It was not a powerful device at all, but just a small laboratory "proof of principle" prototype. It had cost Johnson an enormous amount of time, labor, and optimization to get the critical adjustment required of his two magnet assemblies. But the device had no power source other than the permanent magnet assemblies themselves. Johnson's nonlinear rotor and stator magnets interacted with each other in a manner to break local symmetry. So his machine was an open system and therefore a permissible overunity device; it was not a perpetuum mobile.

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[33] As I have pointed out repeatedly in the past, photons also carry time, not just energy. We have previously shown the process and the photon interaction mechanism that creates the flow of time itself; we will discuss this mechanism in the future. So when Johnson separates the particles and antiparticles, not only does he partially separate them according to spin, but he also alters the local character of time flow during which the resulting magnetic field forces must appear. In other words, he accomplishes a partial separation of time-forward and time-reversed polar interactions. A south pole is just a time-reversed magnetic north pole, in the first place! So a north pole of a bar magnet that is slightly time reversed on one side will partially act on that side just like a south pole. On the other side it will continue to act like a normal north pole. By partially time-reversing (phase conjugating) one side of the north magnetic pole piece, Johnson makes that side look and act like a south pole. that way Howard is able to create two north poles, one on a stator and the other on a rotor, and time-reverse part of one face of the stator's north magnetic pole-piece. Therefore when the proper sides of the stator and rotor north poles are facing, they attract each other, contrary to the conventional textbook. The two poles then repel each other normally as soon as the north rotor poles passes the north stator pole. Hence Johnson can make a surrounding north pole stator assembly "draw in" an approaching north pole rotor assembly, and then kick it on out the other side, because he has broken the local magnetic symmetry. In short, Johnson's magnetic gate can provide a legitimate component of unidirectional magnetic thrust, which means that he can indeed make a rotary permanent motor. Simply put, this "partially separating the spin particles," and thereby partially phase conjugating one face of a magnet, is what Johnson calls a "gate," and this is the patented secret by which his magnet assemblies can be made self-powering. The entire process is still very meticulous, and assembly and adjustments are extremely critical. With Johnson's blessings we hope to shed more light on this subject in coming articles.

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[34] For a basic article on rotary permanent magnet motors, see T.E. Bearden, "On Rotary Permanent Magnet Motors and 'Free' Energy," *Raum&Zeit*, 1(3), Aug.-Sep. 1989, p. 43-53.

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[35] The most blatant error in all of physics is the erroneous notion that an acting force is separate from its receiving mass. Force is defined as  $F \sim d/dt(mv)$ . From that definition alone, it can be seen that the affected mass is a component of the force itself. If you remove the mass  $m$ , you do not have force but merely acceleration. The notion of force separated from the mass came from ancient and familiar experiences of pushing on stones with one's hand, etc. In this primitive case the force-creating agent (i.e., the hand) is certainly separate from the affected mass (i.e., the stone). But the "force on the stone" is actually the force created of and with the stone. It is "stone-force," not "force upon the stone." Quantum field theory already tells us that it is the absorption and emission of virtual photons by the stone's mass that "creates the force." In fact it should go one step further: It is the coupled ensemble of the virtual photon flux and the mass of the stone that constitutes a "stone-force." In your mind, you should try mentally replacing the word "force" with the phrase "mass-force" until you root out the deeply ingrained erroneous notion that force and mass are separate. Because of this archaic error, today's physics can only define a mass in terms of its resistance to a disturbing force, and it can only define a force in terms of its overcoming a resisting mass. This error has prevented any proper definition of either force or mass! But the problem is solvable. For a proper definition of mass without the notion of force, see T.E. Bearden, *Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena*, National Technical Information System, Report AD-763210, 1973.

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In this first article I wanted to introduce the 14 major areas. We will be discussing these areas in some technical detail in the future. We'll also include current major news items of development in these areas, for the interested lay reader. I'll particularly try to give you the benefit of extensive reference citations painfully gathered over the last 30 years. The articles will be targeted toward both the serious researcher and the interested, educated layman.

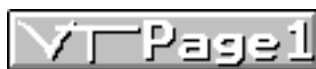
So that's the agenda for the months ahead. We hope you find this information and the approach of direct interest and use.

Again, it's a privilege to be aboard. And we invite you to hang on in the future; it's going to be a wild but exciting ride. We really are going to chase this wild dragon with great vigor.

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## **Precursor Engineering: Directly Altering Physical Reality**

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### **Abstract and Summary.**

We discuss the abbreviated background of Maxwellian electrodynamics, including how the model's erroneous "force field in massfree space" construct came to be. The field in space is not a force field, as is well known, but is merely spatiotemporal energy structuring and patterning. It can be considered as a curvature of spacetime (general relativity view) or as a change in the virtual particle flux of the vacuum (particle physics view). It is a pure energy field. Spacetime is identically energy; virtual particle flux of vacuum is identically energy. A region of change is an energy field.

The energy field in space is only a precursor of the force field in matter; no force is present or involved until the precursor field interacts with charge and mass to produce a force field with mass as a component.

Technically, the change and structuring of massless spacetime/vacuum to produce a net precursor field is asymmetric regauging, and it requires no work because of the well known gauge freedom axiom. The form of the energy is not changed, and work is the change of form of energy. One is permitted to freely change the potential—and the potential energy—of the Maxwell-Heaviside equations (and thus of any physical Maxwell-Heaviside system) at will; e.g., as shown by Jackson {[\[1\]](#)} and many others.

Thus, changing the force-free “EM field”—as it exists in space in its precursor form (energy field form) prior to its interaction with charge and matter—is work-free.

Very large changes in the precursor field state of a Maxwell system can be done by paying only a bit of work for timing and switching the technological systems performing the regauging. Once formed “nearly for free”, the large precursors can then be interacted with charged mass to freely form very large force fields and their dynamics (i.e., precise sets of very large forces, including dynamics, in the interacting material system or medium as desired). We call such assemblies engines.

Spacetime is identically energy, and a curvature of spacetime is identically an energy field available to interact with mass to form force.

Vacuum is identically energy, and a change in the virtual particle flux density of vacuum is identically an energy field available to interact with mass to form force.

Let the term engine refer to either a set of forces or a set of precursors, with the dynamics of the set included. One can almost freely produce strong precursor “engines” and dynamics, and then interact these precursor engines with charged mass (the system medium) to produce very powerful force engines and dynamics in the material system. In this way, one can very powerfully (and almost freely) produce and engineer all fundamental forces of nature, by first engineering the precursors and their dynamics, then allowing free precursor interaction with charged matter so that the “primary forces” are produced as desired.

In this way, physical reality itself—on any and all levels—can be very powerfully engineered at will, without large exertion of operator-furnished power, once precursor engineering technology is developed. This is a negative entropy operation violating the present second law of thermodynamics (which artificially excludes such negative entropy processes). The second law is already totally refuted by gauge freedom itself, as well as by every charge, EM field, and EM potential in the universe.

The first law of thermodynamics also contains an error in its present form, when it assumes that a change of energy

magnitude (as in the change of a system parameter such as the potential) is work a priori. To the contrary, work is performed only if the form of the excess input (regauging) energy is changed. Mere transfer of additional energy in the same form is not work. The present first law must be slightly corrected, since as written it prohibits gauge freedom and thus prevents precursor energy field engineering.

We briefly discuss some relevant historical background and several small examples that demonstrate the overwhelming importance of this work and its future dramatic extensions of science and technology, hopefully for the great benefit of all humanity.

## **Development of Maxwell-Heaviside EM Theory.**

The Maxwell-Heaviside theory of electrodynamics is now well over a century old. It may be taken as dating from Maxwell's 1865 theory {[\[2\]](#)} of 20 quaternion and quaternion-like equations in 20 unknowns—although Maxwell had written earlier papers on Faraday's lines of force and on the characteristics of the medium. More than a decade earlier, quaternions had been founded by Hamilton {[\[3\]](#)}, but there were exceedingly few scientists who understood them or even liked them. Most could hardly tolerate Hamilton's quaternions!

Maxwell published his famous Treatise in 1873 {[\[4\]](#)}. Because it was "tainted" with a higher group symmetry algebra (quaternions), even Maxwell himself came under intense pressure from his publisher to simplify the material in his Treatise. Consequently, Maxwell began rewriting and greatly "watering down" his own theory, having finished rewriting and greatly reducing some 80% of it at the time of his death in 1879. The posthumous later editions published in 1881 and 1891 represent a very serious truncation of the original Maxwellian theory.

In the 1880s, a further great "simplification" was generated by several scientists after Maxwell's death—and notably by Heaviside, Hertz, and Gibbs, with

regauging by Lorentz. Vector algebra—whose group symmetry is much lower than that of quaternion algebra—was formed {5} and became the accepted algebra in which the reduced equations were recast. The lowered group symmetry of vector algebra further reduced the operationalism described by the theory in its quaternion-like form. Even the tensor algebra of today is still of lower group symmetry than quaternions.

The equations taught today at university as "Maxwell's theory" are thus pale shadows, and those equations themselves are actually the equations and notations of Heaviside, having been further "symmetrically regauged" by Lorentz {1,6}. The symmetrical regauging imposed by Lorentz very neatly threw out all COP>1.0 Maxwellian systems taking their excess energy from the active vacuum in the form of free asymmetrical regauging {7}. It also discarded precursor engineering.

At the time these truncated (mutilated may be a better word!) Maxwell equations were adopted in general, it occurred in a short "debate" (mostly in the journal *Nature*) where the vectorists simply discarded the quaternionists' work, etc. {5} It was not done by "sweet science", but by dogma and individual preference for "greater simplicity". Its driving force was the near-universal dislike of quaternions and a strong drive to simplify things as much as possible.

### **Material Ether and “Force Fields in Space”.**

The "Maxwellians" as they are often referred to, all originally assumed the material ether filling all space (and so do electrical engineers today, unwittingly!). Thus they assumed there was not a single point in the entire universe that was devoid of mass. Consequently, the EM fields were—to them—obviously very material fields indeed; i.e., to the Maxwellians they always occurred in mass (e.g., in the material ether or in common matter). They were therefore erroneously assumed to be force fields, and in the view of the Maxwellians a “force-free field” was not possible.



By  $F \equiv \partial p / \partial t = \partial / \partial t (mv)$ , we know that mass is actually a component of force (though inexplicably that is still erroneously ignored in both classical mechanics and electrical engineering). There is no separate mass-free force acting upon a separate mass, because the phrase "mass-free force" itself is an oxymoron. Many foundations physicists such as Wheeler, Nobelist Feynman, etc. have thoroughly discussed this "material origin of force", so it is well known by leading scientists (though seldom known to electrical engineers whose flawed model still blithely assumes EM force fields in mass-free space).

Today, our Maxwell-Heaviside classical EM theory still implicitly retains the old material ether more than 100 years after that type of ether was specifically falsified by the Michelson-Morley experiments {[8]}. Not a single material-ether-assuming EM force field equation was changed after those experiments! By retaining the material ether, the theory has actually concealed the precursor mass-free fields and the astounding ramifications of developing precursor engineering technology {[9]}.

Oddly, we therefore we have a peculiar scientific situation and one of the great stalemates in human scientific history: The most primary kind of physics has been largely ignored in the West. It has not been ignored in some other places, but unfortunately there it has only been used for development of weapons in secret. We do not discuss the weaponry in this paper.

Nobelist Feynman certainly understood there were no force fields in space. He made the following observation {[10]}:

"...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force [i.e., this distortion of spacetime] is called an electric field."

Yet Feynman himself did not adequately define force, and in fact despaired of finding such a definition—apparently because he did not connect the change produced by observation. He stated [\[11\]](#):

"One of the most important characteristics of force is that it has a material origin, and this is not just a definition. ... If you insist upon a precise definition of force, you will never get it!"

In modern physics terms, a "force" is generated in, on, and of a mass (e.g., a charged mass). It is generated when the volumetric mass-free fields (as curvatures of spacetime relativistically, or as altered virtual particle flux of the vacuum region in particle physics) in mass-free space interact with and on a charged mass. That ongoing interaction of a 4-space massless entity (the precursor) with a previously observed 3-space mass is what a "force" identically is, prior to its observation by invoking a  $\partial/\partial t$  operator. Observation results in a frozen 3-space snapshot at that instant—as is well known, time is not an observable, even in principle.

### Precursor Engines and a Physical Mechanism of Regauging

We now have added a physical mechanism to the abstract notion of "asymmetrical regauging", where a potential (and the potential energy) of the system (i.e., the magnitude of the spacetime curvature/altered vacuum virtual particle flux interacting with the charged mass) is freely changed. Further, this physical mechanism can be engineered rather directly. Suddenly we are not trapped in "force field engineering" as the primary causative action, but in "spacetime/vacuum energy" engineering as the primary causative interaction.

In short, now we have moved from the hoary old entropic force field engineering to negentropic precursor engineering as our primary interest.

Let STC be “spacetime curvature(s)”. Let VPF be “virtual particle flux” of the vacuum.

Consider any physical system and its dynamics. There is a specific set of forces and their dynamics, involved in that system functioning. Call this set of forces and their dynamics a force engine. But we know that, for any force, there is a precise massless 4-spatial precursor interacting with the mass component of the force.

Prior to observing the system, consider the 4-spatial characteristics. At any instant, there is a set of mass-free 4-spatial STC/VPF dynamics interacting with the previously observed system masses at all levels, changing the observable system masses and their dynamics as time passes.

Now separate the masses from the STC/VPF dynamics—which separates force into its components of mass and precursor energy field. Call this set of STC/VPF dynamics a precursor engine. Rigorously this precursor engine and each part of its structure is what we refer to as energy. The precursor engine has the capacity (potential) to cause work, since it has the capacity to make a force engine by its interaction with mass, and  $W = \int \mathbf{F} \cdot d\mathbf{s}$  for any force  $\mathbf{F}$  in the force engine.

We have now solved one of the additional problems which gave despair to Feynman: the definition of energy. Feynman also said {[12]}:

"It is important to realize that in physics today, we have no knowledge of what energy is."

Yet to change the precursor engine itself requires no work, since there is no mass and hence no  $\mathbf{F}$ , and thus  $\int \mathbf{F} \cdot d\mathbf{s} \equiv 0$  because  $\mathbf{F} = 0$ . Prior to its interaction with mass to form a force engine and generate work, the precursor engine is merely structured potential energy with dynamics.

Here is the great shocker: Merely changing the structured potential energy—i.e., changing the precursor

engine, in magnitude or function or whatever—is work-free a priori because of the total absence of force. Changing the precursor engine is changing some potential energy (magnitude, direction of flow, dynamics, etc.) and that is mere regauging. It is work-free by the well known gauge freedom axiom, widely used and accepted in physics.

By engineering the precursor engine itself, and then applying the altered precursor engine to an appropriate mass system, real work can freely be produced in the physical system. In the real world, the scientist may have to pay a little to do the switching and timing, but he need not pay to furnish the regauging potential energy required to change the precursor system and thereafter produce the force engine.

### **Thermodynamics and Entropy.**

We have all been taught that a dynamic system is like a leaky diode. I.e., one pays to input some energy to the system, it spills some of it in its internal operations, and one gets out (as energy or useful work) less than one put in. In short, we have erroneously been taught that all engineering is entropic. The second law of thermodynamics has stated that, in progressive operations, the system can either at best keep the entropy (energy of which control and use is lost) the same, or have the entropy increase with time. It is known, of course, that second law violation does occur for small systems and relatively small times, due simply to fluctuation of the statistics on which it is based.

With precursor engineering, however, we have totally violated the second law of thermodynamics, since we ourselves need input only a tiny bit of control and switching energy, to control and use a much larger amount of working energy. The environment freely inputs a great deal more regauging energy for usage, and we need only control it. In short, we have moved from the “leaky diode” type engineering to the “triode” type engineering. Now we have to pay a little for the “control” grid signal, but the cathode energy flow that is

controlled, gated, and shaped to provide the plate energy (plate force engine) is freely input by the environment (by regauging).

We have moved from “entropic engineering” to “negentropic engineering” because triode engineering is also a process for re-ordering disordered energy. It is a process for consuming entropy and producing negative entropy.

Precursor engineering focuses attention on a much more primary cause of forcible actions than the presently considered “fundamental forces of nature” approach. Instead, it focuses upon the fundamental precursor engines that, once formed by free regauging, then freely produce forces that perform work upon systems to alter them, do useful work, etc. That is a purely negative entropy function, totally engineerable. It alters and completes the presently crippled Second Law of thermodynamics (which presently only allows entropic processes, although inherently assuming that its own contradiction has first occurred). Specifically, it changes the Second Law to permit negative entropy processes and functions in addition to positive entropy processes and functions.

In the not too distant future, hopefully precursor engineering will completely revolutionize science and engineering in a myriad of areas, from physics to medicine. In theory, any operational functioning in material physical systems can be directly engineered by pure regauging, simply by freely changing the precursor engine involved in that system in a fashion that interacts to create the necessary force engine and dynamics.

This new and revolutionary negative entropy engineering, will eventually be developed to replace the present hoary old entropic engineering. It now lends real substance to the theoretical proof by D. Evans and Rondoni {[13]} that nonequilibrium steady state (NESS) systems can indeed—at least in theory—produce continuous negative entropy. Evans and Rondoni were so startled at their theoretical results that they felt no

real physical system could exhibit such a Gibbs entropy—i.e., starting negatively at the onset and thereafter continuously decreasing toward negative infinity as time passes. To the contrary, every source charge and dipole in the universe exhibits precisely that action {[14],[15],[16]}.

Unknown to Evans and Rondoni, Leyton {[17]} has also originated and published the higher group symmetry geometry necessary to replace the more limited old Klein geometry {[18]} of 1872. Now a hierarchy of symmetries results in Leyton object-oriented geometry. A broken symmetry at one level does not lose information at that level a la Klein. Instead, it retains the information and also automatically generates a new symmetry at the next higher level—a purely negative entropy operation from first principles! So the proper geometry necessary to allow revision of the old Second Law has been advanced by Leyton.

The dramatic extension of the Second Law of thermodynamics to add negentropic processes due to precursor gauge freedom also resolves the very vexing present major time asymmetry problem of thermodynamics itself: If in a given set of processes the entropy either remains the same or increases, then how was the entropy of the universe ever so low in the first place, and how is it so low now? This “greatest thermodynamics problem” {[19]} cannot be solved in Klein geometry, but it is solved when Leyton geometry and a unified field theory separating force field and precursor field are utilized.

### **What Gauge Freedom Has Been Trying to Tell Us.**

In short, the universality of gauge freedom has more to it than simply changing some equations so they are easier to solve, as Lorentz did to the Maxwell-Heaviside equations by symmetrically regauging them. In symmetrically regauging the equations, unwittingly Lorentz first evoked precursor engineering, but then

locked up the extra free energy by allowing it to produce only equal and opposite forces and stress in the system, never useful work. He did this by eliminating all asymmetrical regauging which would produce a net force field. In that astounding and crippling limitation, Lorentz chose only that subset of Maxwellian systems and precursor engineering that cannot and does not produce energy available to do useful work in the load. Instead, it bottles up all the energy freely received by regauging, as additional stress in the system. To say that this is short-sighted is the understatement of the century! It was done merely to make the equations “more tractable” and amenable to closed solution methods.

Asymmetrical regauging is the wave of the future, for it also is identically work-free precursor engine engineering. It does freely produce a net precursor field and a net force field, thus allowing useful work to be done “for free” or “nearly for free”.

Gauge freedom directly assures us that the potential energy of any EM system can be freely changed at will. If we put our minds to it, we can take in all the EM energy we wish, directly from the local vacuum VPF and curvature of local spacetime, anywhere in the universe by developing and utilizing asymmetrical regauging.

As a trivial example, merely changing the voltage of a system—while freezing the electrons so no current flows—changes the collected energy in the entire circuit; because it changes the potential intensity in which each Drude electron is embedded and with which it is interacting. The solution to the entire energy crisis, for all time, simply waits for scientists to discard symmetrical regauging (no net force fields produced, even though two new free force fields are produced but in equal and opposite fashion). In symmetrical regauging, all the excess free energy in the two new fields freely produced is locked up as stress energy, causing additional stress in the system. However, none of the excess free energy can be used to translate electrons as current, so the energy so freely received



cannot perform useful external work in the load, by deliberate design!

To borrow a phrase from Nikola Tesla, this will one day be recognized as “one of the most inexplicable aberrations of the scientific mind” in recorded history!

By going directly to asymmetrical regauging, which also is precursor engine engineering, one produces both excess free EM energy and a free net force field that can be then freely dissipated to perform free work in a load, paying only for switching and timing costs, etc. Of course one has to employ circuitry other than the closed current loop, common ground circuit! That circuit automatically self-enforces symmetrical regauging (and deliberate crippling of precursor engineering) regardless of how much extra free regauging field energy is added to the system.

### **The Precursor Is Nonobservable.**

As pointed out, the problem of the "force field" not existing as such in space is further complicated by the nature of observation itself. Observation is a  $\partial/\partial t$  operator imposed upon that ongoing interaction of the precursor and the charged mass in 4-space. The result is the stripping away of the time dimension momentarily, producing a frozen 3-spatial snapshot. A rapid series of such continual 3-snapshots, and their recall from memory and comparison, gives us the sensation and experience of "change" and "persistence in time" or "change in time".

We never observe the precursor causes, but only the effects of those precursor causes in mass. From observing the effects, we always have to extrapolate the unobservable precursors that are the unobserved causes. One cannot "see" the accelerated frame one may be in, but one can measure the effects of that nonobservable frame on one's physical system and surroundings.

### **Additional Shortcomings of Classical Maxwell-Heaviside Theory.**

The present Maxwell-Heaviside theory is completely unable to deal with the massless interactions and the force-free entities that interact with mass to produce force. The present EM does not even calculate "the" spatial fields or potentials themselves, but only their "point intensities" when interacting with static matter, as defined by the assumed interaction of the actual geometrical fields with a unit point static charge at every point. To see how this remains confused, we quote Jackson {[\[20\]](#)}:

"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field."

So the precursor spatial "field" is actually not defined in classical EM, but only its intensity as indicated by a unit point static charge's scattering of energy from the Whittaker flows comprising the spatial field itself. What is scattered from a river's flow by a fixed static rock is not the river! And what is scattered varies as the condition of the rock. The same rock, placed in violent churning motion to and fro, will scatter much more energy from the same river's flow.

As an example of violating that static indication of "field intensity", if the interacting charges of an absorbing medium are in particle resonance at the frequency of the input field energy bathing them, the very "definition" of the classical field intensity is thereby altered. Then one can extract more energy from the intensity than is theoretically predicted by the Poynting theory—i.e., by standard "static charge" definitions of field and potential intensities. It has been in the physics literature for some decades, without scientists realizing the true implications.

The same charge in particle resonance at UV or IR will absorb and re-radiate some 18 times as much energy as

we input to it (by standard calculations), from the same classical field, as it does when totally static and not in particle resonance {[21]}. That area of physics is of course well known as negative resonance absorption of the field. It is a noted example of the direct extraction of excess EM energy from the "vacuum" or from curved spacetime, long proven on the bench. Physicists in that field, however, carefully refrain from using the term "excess emission of energy from the resonant medium", or the thermodynamics term of coefficient of performance (COP). The COP = 18, of that EM system, but the scientists only carefully write and speak of the change in the reaction cross section of the resonant particle versus that of the static particle.

### **Importance of the Supersystem.**

In modern physics, we might add the term supersystem {[22]}. The supersystem consists of three components, which are (1) the physical system and its observed dynamics, (2) the unobserved but active local vacuum and its dynamics, and (3) the local curved spacetime and its dynamics. All three elements of the supersystem constantly interact with each other, in modern physics.

In the present classical Maxwell theory, both of the two unobserved supersystem components (the actual force-free precursors that act on the system to generate all its forces and dynamics) are arbitrarily assumed away. The crippled Maxwell theory assumes an inert vacuum (falsified since the 1930s) and a flat spacetime (falsified since 1916). By using force fields and potentials only defined in terms of intensity of the interactions in static charged matter, it only considers effects of the precursors after their interaction with static mass. These effects then further generate other forces in collisions and interactions.

The fact that force fields are still erroneously assumed in space, by standard classical EM and electrical engineering, retains the material ether in the model. Thus the standard model has already discarded (erroneously) the precursor engines and precursor

engineering (deliberate use of asymmetric regauging as a simple and universal means of taking and using enormous EM energy from the active vacuum/curved local spacetime).

Because of this continued assumption of the material ether by ordinary EM models, we have missed the ability to directly (and work-free) engineer the massfree precursor to force. We have therefore been unable to rigorously define force (as pointed out strongly by Nobelist Feynman {11}, by Wheeler, and many others) or energy {12}. Force is the interaction of precursor field with mass, and energy identically is the precursor field.

Classical electrodynamicists just continue to dispose of the “no force-in-space” problem, with a remark similar to that of Jackson previously quoted {20}.

Higher group symmetry EM theory, however, can get directly at all those long-ignored electrodynamic entities and mechanisms, including the precursors, precursor engines, and their free (regauging) generation of forces and force engines in matter. As an example, the Evans model {[23]} is a unified field theory, and quite capable of modeling the interactions between the three components of the supersystem. The present classical electrodynamics cannot and does not do that.

In short, precursor engineering can be developed whenever the scientific community will move off dead center, fund the sharp young graduate students and post doctoral scientists to do it, and allow them to do it.

### Example of Applying Precursor Engineering to Medical Therapy.

We now speak of a future medical capability that can benefit all humanity. It can follow directly from Evans' work {23}, and the effect has already been proven experimentally in France in the 1960s {[24]}. Until now, however, its free alteration of the cellular

regeneration system's precursor bioengine has remained a total scientific mystery because it lies outside the conventional classical EM model. That model, of course, erroneously excludes the precursor engine and gauge freedom.

Visualize a biological system and its dynamics, such as the human body in all its complexities. All the body dynamics may be visualized as a great special "bioengine", which consists of (1) the precursor engine—that set of precursor causes (the structured bioenergy we refer to as massfree biofields) interacting with the body charges and masses at every level, and (2) the bioforce engine produced as a result of those precursor interactions and dynamics.

The bioforce engine is secondary, and it consists of two interacting parts: (1) the precursor bioenergy engine—i. e., the virtual particle fluxes of the local vacuum/ST curvatures and their exact specific dynamics, interacting with the body charges and masses at every level, and (2) the resulting biosystem and its dynamics at every level. The massless precursor bioenergy engine continuously interacting with the physical system produces the force bioengine and its dynamics as the resulting effect of that interaction. Note that the primary (precursor) causal bioengine is not comprised of forces until it interacts with the physical matter of the body and generates the resulting bioforces as primary effects produced in the body. In that ongoing interaction, all bioforces everywhere in the body, at every level, are generated by the precursor bioenergy engine interactions.

It is strongly stressed that this makes a profound and fundamental change to biophysics: Instead of seeking fundamental bioforces (force bioengines) of nature as primary causes, one now seeks fundamental precursor bioenergy engines as primary causes. The great impact is that it requires little or no work to engineer the master precursor bioengines at will, in any fashion desired. In simple language one directly engineers and structures the primary bioenergy (the biofields) and its dynamics, then that structured bioenergy and dynamics interacts on

and with physical biosystems containing mass, to freely produce the desired bioforce engine and thus any conceivable kind of physical change of the biosystem. It can, e.g., induce stabilization and maintenance of the cellular system in any conceivable form desired.

Simply put, bioenergy fields interact with biomass of the biological system, producing all bioforce fields, physical biosystem dynamics, and physical functioning.

### **Structuring and Changing the Precursor Bioengine.**

We examine the structuring of the precursor bioenergy engine and how to freely change it at will.

It can be shown from Whittaker's work in 1903 and 1904 {[25]} that this precursor "bioengine" is naught but a complex set of longitudinal EM waves with added differential functions. Any scalar potential decomposes into a harmonic set of bidirectional phase conjugate longitudinal EM wave pairs (Whittaker 1903), and any field or wave pattern decomposes into two such scalar potentials with differential functions imposed. Hence all normal EM potentials, fields, waves, etc.—including those in biological systems—decompose into a far more primary electromagnetics comprised of longitudinal EM wavesets and their differential functions. Further, this more primary electromagnetics is directly engineerable.

As an example: For a given living body, there is a precise bioforce engine ongoing for that body in its intended healthy state. Hence there is a precise precursor bioenergy engine for that body also, in its intended healthy state.

For any disease or disorder change in that body whatsoever, there is an exactly specific delta precursor bioenergy engine for that disease change and all its actions and interactions, now present and also acting on the body to its detriment.

For any disease-specific delta precursor bioenergy

engine, there is a specific precursor bioenergy antiengine. The antiengine can be made and amplified by pumping. By introducing the amplified precursor bioenergy antiengine, a specific amplified bioforce antiengine is produced. This bioforce antiengine then acts upon the biosystem, specifically reversing the detrimental condition and healing the biosystem.

In other words, a damaged body has a damaged bioforce engine, consisting of the normal bioforce engine and a delta bioforce engine added to it. Hence the damaged body is being continuously interacted by a damaged precursor bioenergy engine, consisting of the normal precursor bioenergy engine and a delta precursor bioenergy engine added to it.

It follows that, if one were to time-reverse (phase conjugate) the total precursor bioenergy engine of the damaged body, the new precursor "bioenergy antiengine" would consist of two parts: (1) the amplified time reversal of the normal precursor bioenergy engine—which antiengine would just tend to make the body cells, etc. a bit younger, and (2) the amplified time reversal of the detrimental precursor delta bioenergy engine, which antiengine would gradually erase that detrimental precursor bioenergy engine and the disease itself!

Though simply put, that is in fact the mechanism used by the human cellular regenerative system (very poorly studied!) that generates the healing process in the body. It has long been obscured in biology by use of the terms "differentiation" and "dedifferentiation" of cells. Those terms refer to effects, not primal causes.

### **Becker's Important Work.**

Becker, e.g., clearly showed that potentials placed across intractable bone fractures directly generated such effects in red blood cells entering the injury site {[26]}. First the cells "dedifferentiated" back to an earlier form, growing a nucleus and shucking their hemoglobin. Then these new cells "differentiated" forward to form the type



of cells that make cartilage. Then those cells further differentiated forward to form the type of cells that make bone. The resulting bone cells were then deposited in the fracture site to heal the fracture.

Becker received multiple nominations for a Nobel Prize for this incredible work. He also attempted to model the cellular regenerative system itself [\[27\]](#), using the normal EM model—which failed him because it cannot model the precursor bioenergy engines at all. Had Becker had access to Evans' present work, he would have produced a gigantic revolution in medicine, and would have very probably been awarded a Nobel Prize. The bone healing work did survive quietly, and today it is used in a number of hospitals to continue to treat and cure otherwise intractable bone fractures.

We again stress that, using free asymmetrical regauging, the precursor engine and antiengine can be directly amplified, essentially work-free. One pays for a little switching and timing for control, but pays nothing at all for the excess energy utilized and structured and controlled, which is pure regauging. Regauging to increase the energy is pure negative entropy engineering, not previously recognized or utilized.

### **Precursor Bio-Engineering Was Demonstrated in France.**

The precursor engine, antiengine, and amplification approach was in fact demonstrated experimentally and rigorously in France by Antoine Prioré, although he was unaware of its nature. His work was personally presented to the assembled French Academy by its Secrétaire Perpetuel, Dr. Robert Courrier [\[28\]](#).

In the 1950s and 1960s, working with eminent French scientists, Antoine Prioré discovered how to directly amplify the "cellular regenerative" process in the laboratory. In short, he unwittingly discovered how to form antiengines for specific diseases and disorders, amplify the antiengines, apply them to the body, and directly heal the body via the resulting "amplified

cellular regeneration” process.

Prioré used a huge plasma tube fed with a mix of transverse EM waves, unwittingly using a characteristic of plasmas that can transduce transverse waves to longitudinal EM waves {[29]}. Hence he had introduced a longitudinal EM wave structure inside the plasma, adding to its field structures. With a large coil around the plasma tube, he produced a large rippling magnetic field whose inner “Whittaker structure” was deliberately modified (by controlling the frequency, and phasing of transverse waves induced in the plasma). The amplified bioenergy antiengine was embedded inside the longitudinal EM wave Whittaker structure of that rippling magnetic field.

Unknown to practical plasma technicians and to classical electrodynamicists, in quantum field theory the longitudinal photon and the time-polarized (scalar) photon exist and are individually nonobservable. However, their combination is observed as the instantaneous scalar potential—i.e., as common voltage. This tells us that, when we produce voltage, we produce not only Whittaker’s 3-spatial longitudinal waves, but also their time-polarized (scalar) counterparts also. In short, by subjecting an object to simple voltage, one subjects it to a special form of phase conjugation by optical-type pumping. The “input” to the pumping is the resident precursor bioenergy engine, and the output of the pumping (i.e., the “time reversed wave counterpart”) is an amplified precursor bioenergy antiengine. The interaction of the amplified precursor bioenergy antiengine and the living body’s mass produces the amplified bioforce antiengine that physically reverses the disease.

Suddenly Becker's work with voltage and its unexpected generation of radical change of red blood cells into new kinds of cells comes alive, because something magical was truly going on in the use of a simple potential across a fracture site (pulsing enhances the effect also). That potential was comprised of longitudinal EM waves and scalar EM waves (time-polarized EM waves) in

combined phase conjugate pairs, slightly altering Whittaker's 1903 and 1904 work. So in nonlinear optical terms, Becker was "pumping" those red cells (and the fracture vicinity) in both the time domain and the 3-space domain. He thus time-reversed both the 3-space longitudinal wave components and the time-polarized scalar wave components. The result was to produce an amplified time-reversed precursor "engine" (i.e., an antiengine) of the resident precursor bioengine actually present in, and acting on, that body to produce its resident force bioengine! This accounted directly for the much more rapid cellular dedifferentiation and redifferentiation effects, compared to the relatively slow and much weaker effects achievable by the feebly amplified cellular regenerative system.

Surrounding Prioré's plasma tube was a very large coil, which—stimulated by the plasma—then produced an oscillating magnetic field that further contained in its Whittaker longitudinal EM wave internal composition that "engine" that Prioré had caused to be introduced. The patient then laid on a table under the magnetic field beam, and the entire body was bathed in this emission. The rippling magnetic field insured that the internal "amplified precursor bioenergy antiengine" was carried down to even the bone marrow cells of the body, affecting everything. As proved for millennia in the living body, if the carried "engine" is the antiengine of the specific disease, then this produces an amplified bioforce antiengine that is directly an amplification of the body's own cellular regeneration mechanism for healing that disease.

The rippling magnetic field carried the "internal new precursor antiengine" to all parts of the body, even through the bone marrow to the primitive cells, etc. Thus the total force engine of the body was directly altered, leading to physical changes in the body that reversed the specific disease and healed the patient. Thousands of rigorous lab animal experiments were performed and are duly reported and documented in the French medical literature {[30]}. As many researchers have suspected, when the body is sick, it is "sick all

over", since the disease "precursor bioengine pattern" is in all the potentials and fields of the entire body, at every level.

Prioré's method added a new and amplified "antiengine" to the diseased body's own precursor engine, in turn directly altering the body's own force engine responsible for maintaining its present state and dynamics containing the physical disease. He simply reversed the body from a "diseased state" back to a "normal state". Hundreds of cases of terminal tumors, certain infectious diseases, clogging of the arteries, etc. were cured in laboratory animals, in some of the most sensational medical research of all time.

### **Results Obtained by Prioré's Method.**

When the added amplified bioengine was the reversal or near reversal of the detrimental bioengine portion already in the body, this process reduced and eliminated the detrimental delta bioengine, within the limits that the scientists had learned how to adjust the input signals for a given disease.

Consequently, unparalleled healing of disease occurred, in thousands of laboratory animal experiments rigorously performed at the University of Bordeaux by famous French scientists such as Raymond Pautrizel {[\[31\]](#),[\[32\]](#)}. Dr. Robert Courrier, Secrétaire Perpetuel of the French Academy and head of its biology section, personally presented the astounding results of the Prioré work to an assembled and stunned French Academy {28}. Terminal cancers, some specific infectious diseases, atherosclerosis, etc. were cured with alacrity and remarkable effectiveness. The results were so astounding that they caused a sensation in France and in some other scientific communities also. Sadly, there was not a single scientist available anywhere openly, who had developed or even knew of the science of engines and therefore might recognize and state the mechanism used in the Prioré work.

The Prioré team also experimentally showed that the

internal patterns or "internal precursor engines" inside a given EM field or potential (in its Whittaker decomposition) do diffuse from one potential or field into another that is superposed, and these internal precursor engine changes remain there and only gradually diffuse away over a period of time (such as a few weeks or months).

It was shown that a drop of blood—taken from a rat successfully healed of a terrible terminal cancer—could then be injected into another rat with the same disease, and that rat would also start to get well and get rid of the cancer. This "pass it along" precursor bio-antiengine diffusion effect lasted for some weeks. But the experiments clearly showed that the necessary "antiengine" had been created in the original treated rat, and that it was actually present everywhere in that rat, in its blood and elsewhere, and only gradually "dissipated" by diffusion reactions as time passes. It also showed that transferring some of the blood containing the new bio-antiengine spread the bio-antiengine into the receiving animal.

This work is all documented in the hard French scientific literature. It has required 30 years for the present author to even be able to explain the primary mechanism.

### **The End of the Prioré Work.**

The Prioré group itself (and the French scientific community as well) could not understand the mechanism because they only had the flawed old Maxwell-Heaviside theory to apply. That theory cannot model the elemental precursor engines, how they produce the force engines, and how such operations are the key to the healing process itself. Consequently, today we still have a medical science using the highly obsolescent electrodynamics of more than a century ago. Present medical therapeutics largely deals with killing and removal processes (such as the immune system's warlike work), while almost totally ignoring the actual healing mechanism and regenerative system of the body.

Medical science has thus produced a largely “intervene and destroy” therapeutics, with the real healing work then largely just “left to the body” in the hopes that it can somehow do the regenerative job required after the destruction and intervention.

The Prioré work showed that, not only can that fundamental cellular healing process be used in advanced new technology, but it can be highly amplified to allow very rapid healing of dread diseases. The Prioré work was ruthlessly suppressed in the mid-70s when the French government changed to a leftist government and quit funding the work. In 1984, not long after Prioré's death, the University of Bordeaux did accept a doctoral thesis on that work by one of its students (Perisse) {32b} —after having been forced to reject Prioré's own doctoral thesis {[33]} in the early 1970s.

So a great medical cure for cancer, hardening and clogging of the arteries, infectious diseases, etc. was brought to the very brink of being born and utilized, and by the proper scientific community. Then because of the lack of a proper physics and electrodynamics model, it could not be scientifically understood. So, sadly, it was strongly opposed and "parked on the shelf" primarily because there was no available electrodynamics known to the scientists that would allow modeling and development of a total technology including both theory and application. The French government and the French scientific community continue to strongly oppose the Prioré work to this day.

### **Electrodynamics Must be Modernized.**

The Prioré case is one dramatic example among many, of how the present terribly inadequate model of electrodynamics (used in electrical engineering) has long inhibited our scientific progress by blocking the development of precursor engineering and negative entropy engineering. That terribly flawed model and its continuing use are also directly responsible for the deaths of hundreds of millions of persons worldwide who did not have to die, had a better EM model been

available and used, and had the scientific community not continued to adamantly propagate and uphold such a seriously flawed EM model.

The source charge solution {14} also entails a coming great impact on thermodynamics. The charge continuously consumes positive entropy (disordered energy) in the active vacuum's virtual state, coherently integrates it, and produces negative entropy in the observable universe by continuously re-emitting the ordered energy (real observable photons), by a now-specified self-ordering criticality process specified by the present author. The resulting macroscopic EM fields and potentials produced and continuously maintained while spreading at light speed are ordered as a function of radial distance.

There are no “static” EM fields and potentials anywhere in nature! Instead, there are steady-state flows of EM energy that establish and continuously maintain steady state dynamic EM fields and potentials, in the sense explained by Van Flandern as follows {[\[34\]](#)}:

“To retain causality, we must distinguish two distinct meanings of the term ‘static’. One meaning is unchanging in the sense of no moving parts. The other meaning is sameness from moment to moment by continual replacement of all moving parts. We can visualize this difference by thinking of a waterfall. A frozen waterfall is static in the first sense, and a flowing waterfall is static in the second sense. Both are essentially the same at every moment, yet the latter has moving parts capable of transferring momentum, and is made of entities that propagate.

Hence every charge in the universe is a nonequilibrium steady state (NESS) system, continuously consuming positive entropy (disordered energy) of the virtual particle flux of the vacuum and producing negative entropy (ordered energy) of its macroscopic EM fields and potentials, along the lines theoretically shown by a



startled Evans and Rondoni {13}. The original charges have been producing negative entropy steadily for some 13.7 billion years, and they are still continuing.

The use of STC/VPF engines as precursors to forces and to material dynamics, thus opens an exciting and more fundamental vista for the environmentalists: The vision of a new kind of engineering in science and the electrical power industry. The breathtaking capability is to develop and use a negentropic engineering that will replace the old entropic engineering that has so sorely poisoned our planet and damaged our biosphere. The present entropic form of the Second Law is and always has been an oxymoron implicitly assuming that its own contradiction has first occurred. This total falsification of the present second law by the source charge completes the work of falsifying that law—work that is ongoing by D. Evans and his colleagues {[35]} and by many others. It also solves the century-old, vexing “time asymmetry” problem of thermodynamics, because negentropic processes are now permitted and experimentally validated.

### Conclusion

As one can see, there is a marvelous new science of the future already in sight, desperately trying to get born. To be born, however, there must exist a growing recognition and use of higher group symmetry electrodynamics and application of a unified field theory that is engineerable by these unusual electrodynamic means. There must accordingly be a growing recognition of the very few great pioneers in this field. Most of all, there must be funding of doctoral programs and post doctoral programs in the area of precursor engineering for negentropic processes and systems.

When this is accomplished, a revolutionary new science of precursor engineering will be born. The positive impact on humanity, the biosphere, and the progress of science will also benefit untold generations yet unborn, from now throughout all the foreseeable future of humankind.

## References

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- [1]. J. D. Jackson, Classical Electrodynamics, Second Edition, Wiley, New York, 1975, p. 219-211; 811-812.
- [2]. James Clerk Maxwell, "A Dynamical Theory of the Electromagnetic Field," Royal Society Transactions, Vol. CLV, 1865, p 459. Read Dec. 8, 1864.
- [3]. William Rowan Hamilton, Lectures on Quaternions, 1st Edn., Hodges and Smith, Dublin, 1853. See also William Rowan Hamilton, Lectures on Quaternions, 3rd Edn., Chelsea, New York, 1969.
- [4]. James Clerk Maxwell, Maxwell, A Treatise on Electricity and Magnetism, Oxford University Press, Oxford, 1873
- [5]. For a history of the development of vector algebra and vector analysis, see M. J. Crowe, A History of Vector Analysis: The Evolution of the Idea of a Vectorial System, University of Notre Dame Press, Notre Dame, Indiana, 1967. Also corrected edition, Dover, New York, 1985.
- [6]. In *symmetrically* regauging the Heaviside-Maxwell equations, electrodynamicists assume that the system potential (and thus the potential energy of the system) can be freely changed at will (i.e., they first assume that the system can be *asymmetrically* regauged). This is also assumed under one of the major principles of quantum field theory, known as gauge freedom. Electrodynamicists *arbitrarily* do two asymmetrical regaugings of the Maxwell-Heaviside equations in succession, but carefully selected just so that the *two new free EM fields that emerge* are equal and opposite. Thus they sum to a vector zero resultant. There is thus no *net* force field which can be used to push current against impedance, to dissipate the free excess system energy to perform work in a load. Instead, the excess free regauging energy is "locked up" as a change in the stress of

the system—as *stress energy*. So the electrodynamicists arbitrarily discard that entire class of Maxwellian systems which asymmetrically regauge by changing their own potential energy and also producing a net nonzero force field along with it. In short, the electrodynamicists deliberately assumed away all the Maxwellian systems which can freely produce coefficient of performance (COP) of  $COP > 1.0$ .

[7]. Ubiquitous use of the closed current loop circuit with the “external” power source in it, rigorously enforces symmetrical regauging, since the circuit equalizes forward emf in the external circuit and back emf inside the dipolarity of the generator. Hence half the energy collected in the external circuit is used to destroy the dipolarity of the generator, while the other half is dissipated in the external circuit’s losses and the load. To restore generator dipolarity, one must input to the shaft of the generator at least as much energy as was dissipated in destroying the dipolarity. And this input energy will thus be greater than the amount of energy dissipated to power the load. Such a circuit thus self-enforces  $COP < 1.0$ .

[8]. Michelson, A. A. and E. W. Morley, "Influence of motion of the medium on the velocity of light," Am. J. Sci., Vol. 31, Series 3, 1886, p. 377-386; — “The relative motion of the earth and the luminiferous aether,” Am. J. Sci., 34(3), 1887, p. 333; — “On the relative motion of the earth and the luminiferous aether,” Phil. Mag. 24(4), 1887, p. 449.

[9]. In the West, precursor engineering has been ignored. In highly classified Russian weapons projects controlled by the KGB (today called the FSS or Federal Security Services), it has been developed and weaponized as what is known as *energetics*. Elsewhere (e.g., [www.cheniere.org](http://www.cheniere.org)) we have reported on the status of such weapon developments, and do not further discuss them here.

[10]. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, Reading, MA, Vol. 1, 1964, p. 2-4.

[11]. *Ibid.*, p. 12-2.

[12]. *Ibid.*, p. 4-2.

[13]. D. J. Evans and Lamberto Rondoni, "Comments on the Entropy of Nonequilibrium Steady States," J. Stat. Phys., 109(3-4), Nov. 2002, p. 895-920.

[14]. T. E. Bearden, "Giant Negentropy from the Common Dipole," Proceedings of Congress 2000, St. Petersburg, Russia, Vol. 1, July 2000, p. 86-98. Also published in Journal of New Energy, 5(1), Summer 2000, p. 11-23. Also carried on website [www.cheniery.org](http://www.cheniery.org) and on DoE restricted website <http://www.ott.doe.gov/electromagnetic/>.

[15]. T. E. Bearden, Energy from the Vacuum: Concepts and Principles, Cheniere Press, Santa Barbara, CA, 2002, Chapter 3: Giant Negentropy, Dark Energy, Spiral Galaxies and Acceleration of the Expanding Universe.

[16]. See also M. W. Evans, T. E. Bearden, and A. Labounsky, "The Most General Form of the Vector Potential in Electrodynamics," Foundations of Physics Letters, 15(3), June 2002, p. 245-261.

[17]. Michael Leyton, A Generative Theory of Shape, Springer-Verlag, Berlin, 2001.

[18]. (a) Felix Klein, "Vergleichende Betrachtungen über neuere geometrische Forschungen," 1872. Klein's Erlanger program was initiated in 1872 to describe geometric structures in terms of their automorphism groups. It has driven much of the physics development in the twentieth century. See also (b) I. M. Yaglom, *Felix Klein and Sophus Lie: Evolution of the Idea of Symmetry in the Nineteenth Century*, Birkhäuser, Boston, MA, 1988.

[19]. See Huy Price, Time's Arrow and Archimedes' Point, Oxford University Press, 1996, paperback 1997, p. 78.

[20]. J. D. Jackson, *ibid.*, 1975, p. 249.

[21]. E.g., see Craig F. Bohren, "How can a particle absorb more than the light incident on it?" American Journal of Physics, 51(4), Apr. 1983, p. 323-327.

[22]. T. E. Bearden, Energy from the Vacuum: Concepts

and Principles, 2002, Chapter 9. The Supersystem and Remarks on Gravity, Antigravity, and Testing.

[23]. See (a) M. W. Evans, "A Generally Covariant Field Equation for Gravitation and Electromagnetism," Found. Phys. Lett., vol. 16, 2003, p. 367-377; (b) — A Generally Covariant Field Equation for Grand Unified Field Theory," Found. Phys. Lett. 16(6), Dec. 2003, p. 507-541; (c) — "The Equations of Grand Unified Field Theory in Terms of the Maurer-Cartan Structure Relations of Differential Geometry," Found. Phys. Lett. 17(1), Feb. 2004, p. 35-47; (d) — "Derivation of the Dirac Equation from the Evans Wave Equation," Found. Phys. Lett. 17(2), Apr. 2003, p. 149-166; (e) — "Derivation of the Evans Wave Equation from the Lagrangian and Action: Origin of the Planck Constant in General Relativity," Found. Phys. Lett., 17(3), Jun. 2004, p. 267-276 (in press); (f) — "New Concepts from the Evans Unified Field Theory. Part One: The Evolution of Curvature, Oscillatory Universe without Singularity, Causal Quantum Mechanics, and Covariant Force and Field Equations," Found. Phys. Lett. (in press).

[24]. A complete exposé of the Prioré affair is given by Jean-Michel Graille, Dossier Prioré: A New Pasteur Affair, De Noel, Paris, 1984 [in French]. A succinct summary of the Prioré affair is given by Christopher Bird, "The Case of Antoine Prioré and His Therapeutic Machine: A Scandal in the Politics of Science," Explore, 5(5-6), 1994, p. 97-110.

[25]. (a) E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," Math. Ann., Vol. 57, 1903, p. 333-355; (b) — "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proc. Lond. Math. Soc., Series 2, Vol. 1, 1904, p. 367-372.

[26]. (a) R. O. Becker, "The control system governing bone growth in response to mechanical stress," J. Ark. Med. Soc., Vol. 62, 1966, p. 404; (b) — and David G. Murray, "The electrical control system regulating fracture healing in amphibians," Clinical Orthopaedics and Related Research, No. 73, Nov.-Dec. 1970, p. 169-198; (c) — and D. G. Murray, "A method for producing cellular dedifferentiation by means of very small electrical currents," Trans. N.Y. Acad. Sci., Vol. 29, 1967, p. 606-615.

[27]. (a) R. O. Becker, "The direct current field: A primitive control and communication system related to growth processes," Proceedings of the XVI International Congress of Zoology, Washington, D.C., Vol. 3, 1963, p. 179-183; (b) — and Joseph A. Spadaro, "Electrical stimulation of partial limb regeneration in mammals," Bulletin of the New York Academy of Medicine, Second Series, 48(4), May 1972, p. 627-64; (c) R. O. Becker, Carlton F. Hazlewood, Abraham R. Liboff, and Jan Walleczek, Electromagnetic Applications In Medicine, NIH-OAM Electromagnetics Panel Report, Jan. 15, 1993.

[28]. R. Courrier, "Exposé par M. le Professeur R. Courrier, Secrétaire Perpetuel de L'Académie des Sciences fait au cours d'une réunion à L'Institut sur les effets de la Machine de M. A. Prioré le 26 Avril 1977," [Presentation by Professeur R. Courrier, Perpetual Secretary of the Academy of Sciences, made at the meeting of the Academy on the effects of the machine of M. A. Prioré.]

[29]. See (a) T. E. Bearden, "Vacuum Engines and Prioré's Methodology: The True Science of Energy-Medicine, Parts I and II," Explore, 6(1), 1995, p. 66-76; 6(2), 1995, p. 50-62. Prioré's patents are: (b) Antoine Prioré, "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968; (c) — "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966; (d) — "Procédé et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], République Française Brevet d'Invention P.V. No. 899.414, No. 1,342,772, Oct. 7, 1963.

[30]. A considerable number of these French references are given in T. E. Bearden, Energy from the Vacuum, 2002, p. 546-547.

[31]. E.g., R. Pautrizel, M. R. Riviere, A. Prioré, and F. Berlureau, "Influence d'ondes électromagnétiques et de champs magnétiques associés sur l'immunité de la souris infestée par *Trypanosoma equiperdum*," [Influence of electromagnetic waves and associated magnetic fields on the immunity of the mouse infected with the *Trypanosoma*



equiperdum], Compt. Rend. Acad. Sci. (Paris), 1966, Vol. 263, p. 579-582. [in French].

[32]. See (a) Michael Graille, *ibid.* Also see (b) Eric Perisse, Effets des Ondes Electromagnétiques et des Champs Magnétiques sur le Cancer et la Trypanosomiase Experimentale [Effects of Electromagnetic Waves and Magnetic Fields on Cancer and Experimental Trypanosomias], Doctoral thesis, University of Bordeaux No. 83, March 16, 1984.

[33]. A. Prioré, Guérison de la Trypanosomiase Expérimentale Aiguë et Chronique par L'action Combinée de Champs Magnétiques et D'Ondes Electromagnétiques Modulés. [Healing of intense and chronic experimental trypanosomiasis by the combined action of magnetic fields and modulated electromagnetic waves], thesis submitted in candidacy for the doctoral degree, 1973. Thanks to the late Christopher Bird, the present author has the actual thesis document submitted by Prioré and rejected by the University.

[34]. Tom Van Flandern, "The speed of gravity – What the experiments say," Physics Letters A, Vol. 250, Dec. 21, 1998, p. 8-9.

[35]. (a) D. J. Evans and D. J. Searles, "Equilibrium microstates which generate second law violating steady states," Phys. Rev. E, Vol. 50, 1994, p. 1645-1648; (b) D. J. Evans, D. J. Searles, and E. Mittag, "Fluctuation theorem for Hamiltonian systems: Le Chatelier's principle, Phys. Rev. E, Vol. 63, 2001, 051105/1-4; (c) D. J. Evans, E. G. D. Cohen, and G. P. Morriss, "Probability of second law violations in Nonequilibrium steady states," Phys. Rev. Lett., Vol. 71, 1993, p. 2401-2404; "Erratum", *ibid.*, Vol. 71, 1993, p. 3616; (d) G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," Phys. Rev. Lett., 89(5), 29 July 2002, 050601.



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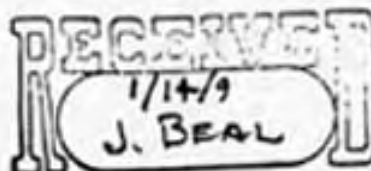
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## ONR LONDON REPORT

R-5-78



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A BIOLOGICALLY ACTIVE COMBINATION OF MODULATED MAGNETIC  
AND MICROWAVE FIELDS: THE PRIORE MACHINE

J.B. BATEMAN

16 August 1978

## UNITED STATES OF AMERICA

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A generator invented by A. Priore of Bordeaux is said to produce radiation which causes certain implanted tumors to regress and cures trypanosomiasis in animals. The published biological data are briefly reviewed and thought to be persuasive. The scanty information available on the nature of the active radiation is also reviewed critically. Attention is drawn to the existence of a French patent describing the invention. A full translation of the patent document is appended. A heavily funded effort to build a machine of greatly enhanced power output is mentioned. The writer considers the project to be pre-		

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## A BIOLOGICALLY ACTIVE COMBINATION OF MODULATED MAGNETIC AND MICROWAVE FIELDS: THE PRIORE MACHINE

### INTRODUCTION

A very complicated generator invented by Antoine Priore (or Priore), a former radar operator without academic qualification, has been said to produce radiation which causes certain implanted animal tumors to regress and cures trypanosomiasis in certain laboratory animals. There are several remarkable things about the papers describing these biological effects, the most remarkable being the contrast between the careful detail in which the biological data themselves are presented and the absence of anything but the most vague, and often contradictory, information about the generator. I have given examples of these disparities elsewhere (1)

A first consequence of the publication of these communications in the *Comptes rendus de l'Académie des Sciences* (Paris) was a violent polarization of opinion within the Academy and in other French scientific circles. There were some who wished to ignore or deny any phenomenon, however completely attested, brought about by inadequately specified means; they would have opposed presentation of the reports to the Academy and would probably have succeeded in suppressing them but for the determined sponsorship of the distinguished *secrétaire-perpétuel*, Prof. Robert Courrier. Others felt that the importance of the results, if they could be confirmed, made further investigation imperative: if possible, with disclosure of the inventor's "secret"; if not, then without it.

A second result was the journalistic exploitation of a situation brimming over with human interest. Commentators (2) (3) (4) (5) ranged from a writer in *Esquire* who has since followed another path to notoriety (3) to Lord (Solly) Zuckerman writing in popular vein (4). None of them resisted the regrettable impulse to step up the popular appeal by introducing scientifically irrelevant biographical details about Priore in order to demonstrate his worthiness for political patronage, which indeed he has received in abundance. Aside from this, they maintained a nice balance between sympathy for the victim of prejudice and healthy scepticism toward his work. Zuckerman, in a

lecture given at the Lovelace Foundation in Albuquerque (5), gives Priore an honorable place in his catalogue of those whose innovative achievements remained unrecognized because of conservative prejudice and ignorance, from Babbage to Peyton Rous, though not without leaving himself a loophole should the initial promise not be kept. The main point, he insists, is that people who believe in what they are doing should refuse to be discouraged in an atmosphere of incomprehension and hostility.

The present report is the outcome of a visit to Priore's establishment sponsored by the organization ADERA for those attending a course of instruction in microwave exposure hazards (6). I shall write very briefly about the alleged biological effects, then about the Priore

invention itself and the nature of its biologically active output. Impressions and private conversations bearing on these matters will be mentioned when they add, reliably or otherwise, to the total picture.

### BIOLOGICAL OBSERVATIONS

There is a pre-history of verbal recollection and gossip connected with the Priore invention. Priore himself is said (3) to have become interested in possible medical applications of electromagnetic waves upon observing that fruit and vegetables could be preserved by exposure to ultra-high frequency fields. A machine was built from US Army surplus and at some stage sick persons were placed in the field generated (3). According to a US scientist who has been interested in repeating some of the Priore experiments, a politically well-connected lady who was cured in this way of cancer after receiving a prognosis of early death is still enjoying perfect health in Bordeaux.

The first experiments on cancerous animals were done by Delmon and Biraben who withheld their results from publication after receiving an unfavorable report from a committee, and because of a fear that publication would prejudice the candidature of one of them for admission to a fellowship (*aggrégation*) (7). They used (8) rats implanted subcutaneously with a well-characterized uterine carcinoma, the so-called T8 (Guérin), having previously studied the effects of x-rays and of pulsed magnetic fields upon these animals without finding anything particularly noteworthy: The magnetic fields had no effect on tumor growth or on the occurrence of lymph node metastases, while the remission produced by x-rays was only transient. After exposure to the window of Priore's machine, on the other hand, tumor growth could be stopped for as long as three months afterwards. The animals recovered good general health, and lymph node metastases were seldom seen.

The T8 tumor in rats was also used by Rivière and colleagues (9) from Guérin's laboratory in the cancer institute at Villejuif. They found macroscopic regression of the tumors and of metastases after treatment and observed no relapses up to three months thereafter. Their publication anticipated that of Delmon and Biraben.

Rivière and colleagues then worked with rats implanted with a lymphoblastic lymphosarcoma which when untreated invariably



proved fatal within 11 to 15 days, with generalized colonization of the nodes and a leukemic syndrome. Treatment under the Priore machine led to total regression of the graft and of the accompanying metastatic and leukemic phenomena (10). Certain of these experiments were done with animals from Courier's laboratory under the constant supervision of his assistant Madame Colonge. The results were the same, and Courier reported them in an addendum to a further paper by Rivière *et al* (11) describing comparable results with a mouse lymphosarcoma. Further studies with the rat (12) yielded the discovery that treated rats clinically free of the lymphosarcoma were able to resorb a second transplant of the isologous tumor while succumbing to an homologous tumor of a histologically different type.

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Courrier (7) complained that, because of a campaign of disparagement, no French "cancerologists" offered to repeat these experiments. Shortlived cooperation was however forthcoming from an English laboratory. According to one account (2), cancerous mice were sent over to Priore's establishment and some healthy ones were later sent from there to England, but the latter were not the ones that had been sent for treatment. The anonymous director of the English laboratory withdrew his cooperation, though not without providing "a French colleague" with a detailed memorandum. In 1977 Courrier (7) issued his own account of the episode and identified the persons concerned. The director was the late Sir Alexander Haddow (Institute of Cancer Research, Royal Cancer Hospital, Univ. of London), and his envoys to Floirac were E. Whisson and Dr. and Mrs. E.J. Arnbrose, the latter being scientists of some repute. Courrier was evidently not persuaded that any substitution had taken place, for he wrote that the rumor was put about: "*on fait courir le bruit...*"

The discovery of specific anti-tumor immunity in the treated animals may have lent force to the hunch that the Priore radiation might act upon the immune system of the host rather than directly upon the cancer cells. At any rate, Professor Raymond Pautrizel, a parasitologist already associated with the work of Rivière and Guérin, exposed mice after they had been injected with a dose of *Trypanosoma equiperdum* sufficient to kill them within five days if untreated, and they all survived (13). At this point extraordinary measures were taken to remove all suspicion of fraud.. The experiments were repeated successfully under lock and key and under the eye of a bailiff appointed by a *Commission de Contrôle* composed of university officials and local dignitaries. The official report was certified by all the members of the Commission. A positive result obtained under such conditions, said Courrier (7), should have put an end to all criticism from men of good faith.

In a further series of short papers in the *Comptes rendus* (14) (15) (16) this indirect effect upon the immune system of animals infected with *T. equiperdum* was confirmed and elaborated. These brief published statements represent a lot of work: just how much was apparent from a lecture given by Pautrizel during my visit to Floirac. When I asked about his plan to publish the evidence in detail, he told me that he had not found a journal willing to accept such a manuscript.

The evidence presented, furnished by experiments on mice (13) (14) (16), rats (14) and rabbits (15) , follows fairly conventional lines which I shall not attempt to review in detail. Briefly: the pathogenic organisms disappeared from the treated animals, which survived indefinitely. In rare cases where the parasites reappeared, they were of a different antigenic type from these causing the original infection. Treatment brought about an intense acquired immunity. Some animals were reinfected 7 times *over* a period of 6 months, eventually with 100 times the original, and otherwise invariably fatal, dose. Multiple reinfection resulted in a high titer of agglutinating antibodies. The blood of these animals conferred upon other normal animals an immunity which persisted for about 45 days. Treatment with an immunosuppressor,

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cyclophosphamide, depressed, but did not abolish, the appearance of agglutinating antibody when infected animals were subjected to Priore irradiation, although relapse occurred after about 12 days. Newborn animals died of the infection whether irradiated or not, and the organisms found in their blood were of the original strain.

Trypanosomal antigen of unspecified nature, injected intraperitoneally after the first irradiation of infected animals, caused an enhancement of anti-body production. When the parasites were protected from the host's immune system by being implanted in a diffusion chamber, Priore irradiation failed to inhibit their multiplication. In his talk, Pautrizel said that in order to elucidate further the apparent effect of irradiation in exalting the mobilization of the immune system, the course of change of immunoglobulins M and G, of albumin/globulin ratio, and of agglutinating and hemagglutinating titers was followed in irradiated and reinfected animals for about one year. The data were given in detail. With no time in which to understand, much less to assimilate them, I was left only with the impression that a clear picture has yet to emerge--a conclusion apparently shared by Prof. Czersky of Warsaw. One point of interest was the passing mention of a failure to modify the course of a malarial infection. This is not surprising, perhaps, remembering the vastly more complex life cycle of the plasmodium and its greater antigenic variability.

The postulated general stimulation of "defense mechanisms" by the output of the Priore machine led Pautrizel to ask whether this effect might extend to the prevention or cure of atherosclerosis. Another short paper communicated, as usual, by Courier: (17), described a "spectacular" attenuation of the hyperlipemia induced in rabbits by a diet of "industrial granules" supplemented by 1% of cholesterol, resulting in a daily cholesterol intake by each rabbit of about 1 gram. The observed effect of irradiation took the form of all inhibition of increased cholesterolemia, persisting for several weeks after treatment, and a marked decrease in the extent of aortic deposition. I find the data rather unconvincing, with quite a lot of overlap of experimental and control values. As for the explanation of the effect, if it can be confirmed, Pautrizel and colleagues (17) ask whether it could be due to an activation of lipid catabolism. Strangely enough they do not discuss the role of macrophages in the regression of tumors, the cure of

trypanosomiasis, or the prevention of hypercholesterolemia, although macrophage mobilization might provide a common mechanism.

### THE INVENTION

Much has been written deploring Priore's secretiveness. It has been an embarrassment in one camp and a ground for dismissing his invention in another. My own view is that a secretive inventor and his invention, if important, must be investigated as a part of the external world, and the obstacle posed by limited cooperation accepted in the spirit in which the inaccessibility of nature is accepted as a challenge to our wits. Priore has in fact been much more considerate than the Almighty, who after all has provided no blueprints to his creations, while Priore included in his first paper a footnote (9) informing us

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that the physical principle of his invention has been the subject of a patent (18). How strange that none of the journalistic commentators, from Zuckerman down the line, have thought it worthwhile even to mention the existence of this document. When drawing it to the attention of several members of the party visiting Floirac, I found astonishment at its existence followed by doubts as to whether, since they had not read it, it could contain any information of value. I had no opportunity to ask Priore about it, but an associate who did so met with a similar response: it won't help very much, he said. Nevertheless the apparatus described is presumably that used by Rivière, in whose paper it is mentioned, and the amount of detail given is such that, unless indeed it is fraudulent, a reasonable guess as to the nature of the emerging radiation ought to be possible for people competent in the field.

With this in mind I planned to include only a summary in this report, but have now decided upon a full translation (Appendix), with out which the odd flavor of the document would be lost. A seemingly reasonable description of components and layout is coupled with a quaint--some might say superstitious-- intrusion of pseudo biology and mention of electrophysiological pioneers whose identity can only be guessed through a haze of misspellings. There is, for instance, the choice of modulation frequency of the magnetic field to match the rhythm of the patient's heartbeat. There is, too, the comment that the best results are obtained when the cathode generating a stream of positive ions is made of molybdenum, the metal whose valency is closest to the mean valency of the chemical molecules constituting living tissues.

I leave the reader to form his own impression of the invention described in the patent, save to mention that the active radiation emerges from a tube containing a rotating deflector upon which impinge, from several different sources, a stream of positive ions accelerated in a cyclotron, a beam of centimeter waves generated by a magnetron, and a magnetic field. Any or all of these may be chopped or modulated according to various patterns.

The machine was working during the visit to Floirac. One could see the exit of the tube beneath which the biological targets are placed. There was a certain amount of rumbling and crackling, and the pinkish luminescent plasma appeared to be turbulent. I asked about the speed of rotation but was told by one of Priore's assistants that the information is strictly confidential. I would guess it to be well under 100 rpm.

### THE EMERGENT FIELD

After several misleading statements about the nature of the biologically active field generated by Priore's machine (mentioned in ref 1), a short paper in the *Comptes rendus* described the results of experiments in which two physicists of established reputation had been allowed to cooperate with Priore, Pautrizel, and their associates. Berteaud and Bottreau (19) were able to analyze the radiation in some detail, up to x- and gamma-ray frequencies. Their report is confined to



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the assertion that they have established the presence of a 9.4-GHz pulsed electromagnetic wave, amplitude modulated at HF frequency 17 MHz, and a slowly modulated continuous magnetic field of the order of 1kG.

Other components, if detected, are not mentioned. There exists, I am told, a confidential report of the whole investigation. Bottreau assured me personally that there was no trace of ionizing radiation.

Berteaud and coworkers (19) also mapped the intensity distribution of these radiations in a plane perpendicular to the axis of the apparatus. Then, using as targets mice infected with *T. equiperdum*, they were able to demonstrate a simple relationship between the rate of decrease of *parasitemia* in these animals and the relative intensity of the UHF component. However, in separate experiments they found that fatalities among infected mice were not decreased when the animals were exposed to an unmodulated 9.4-GHz field of comparable intensity. They concluded that the UHF field generated by Priore's machine is a necessary but not sufficient condition for the observed biological effects.

The results of Berteaud *et al* leave us with some unanswered questions. If their analysis of the field was complete, the biological activity must rest jointly on the UHF component and the magnetic field. How critical are the exact value of the many parameters involved and the relationship between them for the manifestation of biological activity? Is it possible that the methods available to Berteaud and coworkers were incapable of furnishing a complete analysis?

One can only speculate. It has struck me that in all the papers describing the biological effects of this radiation, there is nowhere any mention of any search for the the correct operating conditions of the machine. Apparently the machine, if it works at all, always produces results, and one must remember that two different models have been built and found to be effective. The one quantity that is regularly mentioned is the is the magnetic field strength, 620 G in the first model and 1240 G in the second. The patent document seems to suggest that there is great flexibility in the mode of operation. It is moreover almost inconceivable

that Priore could have had any genuine theoretical basis upon which to favor one particular set of patterns over another in relation to biological changes that are themselves of intractable complexity and totally unpredictable. One is bound to suspect that the mix is anything but critical, and that if the reported biological effects are genuine they might very well be brought about by much simpler means. It is of some interest that extremely sharp frequency selectivity has been claimed in recent biological experiments with monochromatic microwaves, in contrast to the sort of flap response surmised in the present context. The need for fine tuning could of course be obviated in a machine designed for sturdiness and broad applicability by arranging for it to generate "white" energy with respect to the several decisive characteristics, including modulation frequencies and perhaps their derivatives, or alternatively to generate an output which varies rapidly in real time, systematically or randomly, over a sufficiently wide range of values. The biological effects of such

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radiation would then be the sum of various qualitatively and quantitatively different selective processes including the possible cancellation of additive effects such as stimulation and inhibition. However, total nullification would be no more likely it is, for instance, in the visible everyday consequences of illumination by sunlight. Such an approach, if it has been adopted by Priore or if it has emerged fortuitously as an unforeseen property of an assemblage of components chosen on the basis of some other rationale, would account for the extravagance of the machine in energy consumption in return for a very modest biological yield. There is no immediate evidence for this in the statements of Berteaud and Bottreau (19), but the relevant quality of "whiteness" might apply pertinently to other parameters than those investigated by them.

The possibility that some hitherto unrecognised feature of the radiation from a rotating plasma may be responsible for the Priore effects should not be dismissed out of hand, at any rate by those who, like myself, know nothing about plasmas. Dr. John Carstou of Brookline, MA, who counts among his accomplishments an extension of the Maxwell equations to the evaluation of ponderomotor forces, likes to call the Priore machine a magnetohydrodynamic wave guide. He considers the acceleration of the plasma to be a significant feature. He refers to the various types of oscillation that may be set up but does not, and presumably cannot, say how they can manifest themselves across a quartz window - . One's naive reaction is to doubt, in any case, whether the accelerations attainable in an apparatus as described in the patent document would be great enough to initiate a gravitational wave of any significance. Unless the suggestion is an obvious absurdity to a plasma physicist, somebody will have to do the arithmetic.

### THE NEW GENERATOR.

The further development of Priore's invention is being done under the auspices of an organisation set up for the purpose : the *Société d'Exploitation du rayonnement Antoine Prioré* (SERAP) which brings Priore into formal relationship with a company, *moteurs Leroy Sommer* of Angoulême. This company has been the recipient of a \$0.7 million contract from the DGRST (*Délégation Générale à la Recherche Scientifique et*

*Technique*) for the construction of a third machine of greatly increased output. Priore has been reported (3) to predict that the cost is more likely to be \$3 million. No doubt other sources of funding are available. In return for much support Priore promise a much bigger and better machine that will generate a more intense field of much larger cross section than those with which the results already reported were obtained. So, one can guess, larger groups of small animals will be irradiated simultaneously for shorter periods than formerly and the rate of accumulation of data will increase - if, that is, the biological measurements can keep pace. Perhaps too, by the same token, small groups of large animals will be treated, with the single sick human as the ultimate target of the entire endeavor.

- (Bearden note :) quartz transmits UV (Ultraviolet Radiation) - see tie-in to Russian work & UV "mitogenic radiation" transmitting thru quartz windows between cell cultures.

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Little was learned of this latest development during my visit to Floirac. The Priore residence, is coming to look like an industrial laboratory of electrical engineering geared to pilot scale operations. There are rumors of serious technical difficulties such as might have been anticipated in scaling up such a complicated device. It is said to be proving difficult, for instance, to construct a pyrex container able to cope with the very high energy flux in the plasma.

Is the new machine really needed? At the technical level the answer is almost certainly "no". Evidently technical considerations are overruled by others, no doubt of personal, political, and even patriotic nature.

The whole operation takes on a farcical aspect when one considers that the only genuine need in the present state of affairs is to get independent confirmation, or refutation, of results already obtained with equipment that was clearly adequate for the original experiments. The funds now made available would suffice for the building of several replicas of the mark 2 machine. These, placed in selected centers of research, could be used by independent teams for a critical repetition and extension of earlier findings. The success or otherwise of the time-consuming attempt to build a giant machine is largely irrelevant to the central doubts that persist as to the claims made for the Priore radiation, and this expensive diversion of effort betrays a certain recklessness which ill serves the quest for a solution to the mystery surrounding "*l'affaire Prioré*".

Note : References (3) to (5) have been available to me in the form of translations into French and I therefore cite them in this form, with the original English reference when available .

1. Bateman , J.H. 1977. Microwave Magic. ONR London Conference Report, ONRL C-14-77.
2. Greenberg, D.S., 1978. The French Concoction *Saturday Rev. Sol. , May , 36 - 44*. Translated by the *Association Nationale de Bioélectromagnétisme (ANB)* under the title: La Mystérieuse Machine Médicale Française.
3. Rorvik, D. M., 1975. Les Français ont-ils un traitement contre le cancer ? Translation by ANB of the article in *Esquire*, July .
4. Zuckerman, (Lord) , 1973. Le grand mystère de la machine magnétique de Bordeaux . Translation by SERAP of the article: The great Bordeaux magnetic mystery machine. *Sunday Times Weekly Review*, 7 Jan.
5. Zuckerman, (Lord) , 1974 . Orgueil et préjugé dans le domaine de la science. Translation by ANB of the William Randolph Lovelace Commemorative Lecture : Pride and prejudice in science. *Aerospace Medicine* 45, 638 - 647.
6. Bateman, J.B. , 1978. Staging the perils of non-ionizing waves. Office of Naval Research London, *European Scientific Notes*, ESN 32-3 : 85-88.
7. Courrier, R. 1977. Exposé de M. le professeur Courrier secrétaire perpétuel de l'Académie des Sciences fait au cours d'une réunion à l'Institut sur les effets de la machine de M. A. Prioré le 26 Avril 1977.
8. Delmon, G . , Biraben, J . , 1966 . La croissance du carcinome de Guérin sous l'action de champs magnétiques . *Rev. Path. Comp.* 3 , 85-88.
9. Rivière, M . R . , Prioré A . , Berlureau, F . ,

- Fournier, M . , Guérin, M . , 1964. Action de champs électromagnétiques sur les greffes de la tumeur T8 chez le rat. *Compt. Rend. Acad. Sci.* 259, 2895-7.
10. Rivière, M . R . , Prioré A . , Berlureau, F . , Fournier, M . , Guérin, M . , 1965a. Effets de champs électromagnétiques sur un lymphosarcome lymphoblastique transplantable du rat. *Ibid.* 260, 2099-2102.
11. Rivière, M . R . , Prioré A . , Berlureau, F . , Fournier, M . , Guérin, M . , 1965b. Phénomènes de regression observés sur les greffes d'un lymphosarcome chez les souris exposées à des champs électromagnétiques. *Ibid.* 260, 2639-2642.



12. Rivière, M . R ., Guérin, M ., 1966. Nouvelles recherches effectuées chez les rats porteurs d'un lymphosarcome lymphoblastique soumis à l'action d'ondes électromagnétiques associées à des champs magnétiques. *ibid.* D262 2669 - 2672.
13. Pautrizel, R ., Rivière, M ., Prioré A ., Berlureau, F . 1966. Influence d'ondes électromagnétiques et de champs magnétiques sur l'immunité de la souris infestée par *Trypanosoma equiperdum*. *ibid.* D263. 579 - 582.
14. Pautrizel, R., Rivière, M., Prioré A., Berlureau, F., Pautrizel A .N. 1969.  
  
Stimulation, par des moyens physiques, des défenses de la souris et du rat contre la trypanosomose expérimentale. *ibid.* D268. 1889 - 1892.
15. Pautrizel, R., Rivière, M., Prioré A., Berlureau, F., Pautrizel A.N. 1970.  
Action de champs magnétiques combinés à des ondes électromagnétiques sur la trypanosomose expérimentale du lapin. *ibid.* D271, 877 - 880.
16. Pautrizel, R ., Prioré A ., Mattern, F ., Pautrizel A . N . 1975.  
Stimulation des défenses de la souris trypanosomée par l'action d'un rayonnement associant champs magnétiques et ondes électromagnétiques. *ibid.* D280, 1915 - 1918.

17. Pautrizel, R ., Prioré A ., Dallochio, M . , Crockett, R . 1972. Action d'ondes électromagnétiques et sur les modifications lipidiques provoquées chez le lapin par l'administration d'un régime hypercholestérolé. *ibid* D274, 488 - 491.
18. Prioré, A ., 1963. Procédé et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes. République Française : *Brevêt d'invention* P.V. N°. 899.424, N°. 1.342.772.  
Délivré par arrêté du 7 Octobre 1963.
19. Berteaud, A . C ., Bottreau, A . M ., Prioré, A., Pautrizel, A. N., Berlureau , F., Pautrizel, R . , 1971. Essai de corrélation entre l'évolution d'une affection par *Trypanosoma equiperdum* et l'action d'une onde électromagnétique pulsée et modulée. *Compt. Rend. Acad. Sci.* D272, 1003 - 1006.

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## APPENDIX

Brevet d'Invention. P.V. no. 889.414 No. 1.343.772 Classification  
Internationale: A 61 k-H OS g

Procedure and assemblage for production of  
radiation especially serviceable for the treatment of  
living cells.

Antoine Priore

Requested 1 June 1962, 14.52 hours, Paris

Released by decree (arrête') of 7 Oct 1963

The invention deals in a general manner with radiation capable of penetrating matter. More exactly, it aims at a procedure and an apparatus making it possible to obtain a combination of radiations of different types able to penetrate matter and especially to penetrate intimately living organic tissues in order to produce in them certain effects, particularly in human tissues with a view to a therapeutic effect without destroying essential elements such as the enzymes.

In conformity with the present invention, one emits in a cavity a stream (rayonnement) of electrically charged particles upon which one superposes electromagnetic radiation of the centimeter wavelength range, the wavelength of which is preferably between 3 cm and 80 cm, and one directs the resulting radiation emerging from the cavity on to the object to be irradiated.

This applicant has shown that the penetration and, in particular, the curative effects are very distinctly improved when one gives the electromagnetic radiation a frequency determined as a function of the organ or the tissue to be penetrated or to be treated. For example, a wavelength of 14 cm is suitable for the liver and a wavelength of 19.5 cm for the spleen.

Preferably, the stream of charged particles is accelerated in a particle accelerator in such a way as to increase the force of penetration.

The resulting radiation is advantageously applied and directed upon

the target, that is to say, upon the tissue to be penetrated, by the intermediary of a tube which is the site of electric fields and of magnetic fields for acceleration and control, the said radiation being preferably guided and/or reflected by a rotary deflector placed in the tube.

It is often advantageous to modulate or impose rhythm on this stream of particles by means of variable magnetic and/or electric fields so as to augment still more the force of penetration. This rhythm is preferably consistent, especially in medical applications, with the intrinsic period of the tissue to be penetrated or of the neighboring tissues, for example, muscle. These intrinsic periods are well-known in medicine and are applied, particularly, for diathermy; they are situated in the wavelength range from 1 m to 50 m and more especially from 1 m to 18 m.

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Preferably, one arranges to modulate the emission of radiation, the accelerating electric and magnetic fields, and perhaps also the rotary deflector, to the cardiac rhythm of the subject.

It seems that the result obtained by the invention in the treatment of maladies of living cells (vegetable or animal) are due to certain phenomena which will be described, it being understood that this exposition will not circumscribe the invention.

As a function of its electro-physico-chemical constitution, the cellular pair nucleus-protoplasm is endowed with electric conductivity in direct relationship with ion exchange processes provoked by metabolic phenomena. One finds in tissues the presence of an accumulation of electricity at different potentials according to the different cellular densities of the tissues.

The work of Renshaw, Forbes, Morison, Amassian, de Vito, Buser, Albe-Fessard, Tauc, Adrian, etc. has shown with the aid of micro-electrodes the existence of slowly oscillating elementary electric activity in the interior of cells; it can be thought that the rhythmour (or pace-maker) is achieved by the oscillatory electro-magnetic system comprising the cell nucleus. This nucleus, in effect, is made up essentially of tubular filaments of insulating material (related to chitin) containing in its interior an electrically conducting saline liquid, and these filaments, coiled upon themselves, can be considered to constitute real little oscillatory circuits.

The recent work of Warson [sic] in America, as well as that of French scientists, including a communication from Polonsky, Donzon and Sadron presented to the *Academie des Sciences* by Prof. Frances Perrin on 16 May 1960 (*Rec. comptes rend. heb.*, 250, No. 20, 3414-3416) making it clear that experimental samples of solid DNA manifest properties analogous to those known in ferroelectric materials, makes plausible the hypothesis that a potential difference may exist between nucleus and periphery of cells. Certain recent theories go even further and liken the cell to an electronic receiver-emitter device normally functioning in harmony with the ambient media. The oscillatory system of damped waves, constituted by the cell nucleus, would behave in accordance with the laws governing

semi-conducting materials.

The applicant is led to the conviction that in a normal state of physico-electric equilibrium, the cell nucleus is positively charged but can acquire a negative surcharge following phenomena analogous to polarization.

The invention, especially, enables organs afflicted by this inversion of their electric potential, particularly in the case of the pathologic negative surcharge of cancerous nuclei, to recover their former equilibrium.

The following description in regard to the attached drawing, given as a non-restricting example, will make it possible to understand how the invention can be realized, the details which emerge both from the

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text and the drawing being, of course, part of the said invention:

Fig. 1 is a schematic section showing an apparatus for production and emission of an electromagnetic field combined according to the invention.

Fig. 2 is a frontal elevation of the cathode, taken from the right of Fig. 1.

Fig. 3 is a section through III-III in Fig. 1.

Fig. 4 is the overall scheme of the electric supply.

Fig. 5 is a view analogous to Fig. 1 showing another mode of implementation.

Fig. 6 is a section through VI-VI in Fig. 5.

Fig. 7 represents schematically an apparatus for pulsing the electric current.

Fig. 8 is the circuit of an amplifier permitting activation of the apparatus of Fig. 7 at the cardiac frequency.

Fig. 9 is the circuit of an oscillator permitting modulation of the electric current according to a wavelength between 1 m and 18 m.

The assemblage of Fig. 1 contains an apparatus 1 emitting electrically charged particles 2 in a cavity or passage 3, a cyclotron 4 accelerating the particles 2 and sending them into a cavity 5 forming a tube into which merges another cavity 6 acting as wave-guide for electromagnetic radiation of frequency in the centimeter range emitted by a magnetron 7. The cavity 8 formed by the joining of tube 5 and waveguide 6 leads into a tube 9 in which the resulting radiation is accelerated and aligned. The interior of the cavity-formed by the assemblage of elements 1, 3, 5, 6, 8 and 9 contains argon at a pressure of 2 mm mercury.



The particle emitter 1 consists of an electron gun comprising a plate 10 and a cathode 11.

The cathode 11 is of molybdenum and has the very special form represented in Figs. 1 and 2. It consists of a rim 11a connected by two aligned spokes 11b to a hub 11c pierced by a hole 11d with its axis along XX'. The rim 11a is in two parts (as one sees in Fig. 1) which may be held together by screws (for example) forming a cavity of revolution 11e traversed by a number of holes 11f parallel to the axis XX' and regularly spaced. The filament for heating, 12, situated in the interior of the cavity 11e and is connected to the power supply conductors 12a.

The best results are obtained with a cathode 11 of molybdenum. The applicant has obtained satisfactory, but slightly inferior, results with tungsten cathodes. It turns out that molybdenum, and to a lesser degree

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tungsten, are the metals whose valency is closest to the mean valency of the chemical molecules constituting living tissues and more particularly those of human beings. One might well seek to use this fact to explain scientifically the phenomena involved, but it is understood that the invention is not limited by any scientific explanation. Concerning, on the other hand, the gas present in the apparatus at low pressure, the best results have been obtained with argon; the applicant has also obtained satisfactory, but slightly inferior, results with other gases of the rare gas series.

Surrounding the tube which constitutes the electromagnetic chamber are arranged: an electromagnet 13 with its winding 13a, placed at the level of the cathode, and the accelerating coils 14 and 15. Other accelerating coils 14, 15 and 16 are similarly dispersed around the cavities 3, 5 and 8.

The two semi-circular boxes or "dees" 4a of the cyclotron 4 are placed in the usual manner between the poles of the frame around which are wound the accelerating coils 4b and 4c.

The magnetron 7 is of a familiar type and must be capable of emitting in the cavity 3 a centimeter wave of adjustable wavelength from 3 cm to 80 cm.

The lower portion of the tube 9, for acceleration and alignment, contains a cathode 17 resembling the cathode 11, with a filament 17a. This cathode 17 is supported by a hollow pillar 18 pierced by holes 18a close to its junction with the bottom of tube 9. This pillar 18 communicates with a tube 18b emerging on the axis of a rotary deflector 19 carrying at each end a "crown" of graphite plates 19a inclined at 45 degrees to the vertical. The rotating axis 19b of the rotary deflector is mounted in a support 20 fixed to the interior of tube 19 and carries at its upper extremity magnetic bobs 19c which ensure that it will be set in motion in cooperation with the magnetic bobs 21a mounted on the shaft 21b of a motor 21. The lower extremity of the rotary deflector 19 is composed of a piece of molybdenum or of tungsten 19d in the form of a pyramid whose apex is opposite the open end of the tube 9.

The hollow base 18 and the tube 18b can be of a borosilicate glass of low coefficient of expansion such as that sold under the trademark "Pyrex". They may also be of quartz. Tube 9 itself can be of "Pyrex" as above or of another glass of the quality currently used for the manufacture of electronic tubes, but its bottom 9a, which is traversed by the radiation, is advantageously made of quartz.

The duct 8 joins the tube 9 by way of several tubulures[sic] such as 8a and 8b directed in vertical planes towards the plates 19a at a certain angle, which is advantageously about  $22\frac{1}{2}$  degrees. An electromagnet 23 analogous to the electromagnet 13 of the emitter tube 1 is placed around the cathode 17. Similarly, accelerator windings 24 are disposed around the tube 9. This tube also carries, at positions indicated in the drawing, three elec-

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trodes 25, 25a, and 25b surrounded by windings 26, 26a, and 26b, respectively. The drawing shows the supply lines, 17b, 17c of the cathode and its filament and that of the plate 22a.

The basic plan of the electric supply is represented in Fig. 4. The part 27 feeds an initial branch with low voltage alternating current: this consists of a rectifier 28 (e.g., a Kenotron) whose rectified current is modulated at a frequency variable between 30 and 120 pulses per minute of means of a resistance 29, the control apparatus for which will be described with reference to Figs. 7 and 8. The current so modulated is passed through the electromagnets 13 and 23 in such a manner as to generate, normal to the cathodes 11 and 17, a modulated field of 10,000 to 20,000 gauss.

The part 27 also feeds a variometer (interrupter) 30 which modulates the current of this part at a variable frequency 30 to 120 pulses per minute, the current pulsed in this way serving to feed the remainder of the installation, to wit: The magnetron, 7;

A converter 31 whose excitation is modulated at a variable frequency 300 to 900 Hz, yielding a doubly modulated current (first at 30-120 pulses per minute, then at 300-900 Hz) which feeds the coils 15, 16 and 26;

Another converter 32 producing a low voltage direct current modulated at 30-120 pulses per minute by the variometer 30. This current feeds the motor 21 as well as the motors driving the variometer 30 and the apparatus controlling the resistance 29.

The current produced by the converter 32 also feeds a voltage step-up apparatus 33 consisting of a vibrator followed by a transformer and a rectifier, and producing a direct current varied at 30 to 120 pulses per minute imposed by the variometer 30. The maximum value of the voltage produced by the apparatus 33 is, for instance, 300,000 V, but this value may vary up or down, depending on the power one wishes to operate with.

The current produced by the voltage step-up apparatus 33 feeds the coils 4b of the cyclotron and 24 of tube 9, as well as a rheostat 34 permitting regulation of voltage to the desired value between 5000 V and 70,000 V. This voltage is applied to an oscillatory circuit 35 which produces oscillations at a frequency variable at will of wavelength between 1 m and 18 m. The current available to the output terminals 35a, 35b of this oscillating circuit 35 is thus a high tension current modulated first at 30 to 120 pulses per minute (by the variometer 30) and secondly at a wavelength 1-18 m. This current feeds the coils 4c and 14; the electrodes, 25a, and 25b are connected to terminals 35a and 35b, respectively, and electrode 25 is connected to the midpoint 35c.-

Cathodes 11 and 17, the "dees" of the cyclotron, and the plates 10 and 22, not shown in the diagram of Fig. 4, are connected to the output of the step-up assembly 33, while the heating current for the filaments 11e and 17a is furnished by the resistance 29.

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To operate the apparatus, one adjusts the controls of the resistance 29 and the variometer to the desired rhythm; in medical applications, this is advantageously the subject's cardiac rhythm: This rhythm is thus imposed upon the whole installation. The cathode 13 emits toward the left a stream of positively charged particles 2, which are concentrated by the electromagnet 13 and accelerated by the coils 14, 15 and 16 and by the cyclotron 4. Superimposed on this particle stream in the duct 8 is the electromagnetic radiation from the magnetron 7, which is adjusted to the wavelength found by experience to be most appropriate to the cells which are to be penetrated, e.g., 14 cm for the liver and 19.5 cm for the spleen. The resulting radiation is deflected, directed and accelerated in tube 9 and is directed by way of the base of this tube toward the target to be penetrated.

It must be noticed that the magnetic field of the coils 15, 16 and 26 is modulated, by means of the converter assembly 31, at a frequency adjustable between 300 and 900 Hz. This modulation has the effect of concentrating the particles, that is to say to detach them from the walls of the tubes, and it also permits an appreciable saving in weight of the iron cores of the coils. One chooses the highest frequencies (i.e., around 900 Hz ) when one wishes to produce hard radiation at the exit of tube 9, and the lower frequencies for soft radiat[i]ot[sic] (radiation?).

The unidirectional magnetic fields of the coils 4c of the magnetron (sic) (cyclotron?) and the accelerator coils 14 as well as the electric field of electrodes 25, 25a, 25b, are modulated by the oscillatory circuit 35 at a chosen wavelength between 1 m and 18 m. In medical applications notable one selects the wavelength that best suits the organ to be treated or its surroundings, such as muscle. As already indicated, experience with diathermy makes it possible to determine the most suitable wavelength.

It must be noted that the resulting radiation already possesses, in tube 8 (Fig. 1) a considerable penetrating force. One could therefore use the assemblage described by omitting tube 9 and terminating the cavity at the end of tube 8 by means of a glass or quartz base, the resulting radiation being accelerated and directed, for

example, immediately upstream from the base, by a final coil (not shown) surrounding tube 8. However, tube 9 appreciably improves the results.

Figs. 5 and 6 represent another mode of realizing the assemblage in accordance with the invention, in which the elements playing the same role are indicated by the same signs as in Figs. 1 and 3, modified by primes.

The arrangement of the connecting ducts of Fig. 5 in relation to tubes 1' and 9', to the magnetron 7' and the cyclotron 4', is different from that of Fig. 1 and has been used successfully by the applicant. The waveguide 6' of the magnetron 7' opens into the end of tube 1' and the duct 3' carrying the resulting radiation, divides into two branches: Branch 36 which conducts the radiation directly to tube 9', and branch 37 which conducts it to the cyclotron 4'. This blocks the electromagnetic radiation and accelerates the stream of particles which is passed by way of duct 38 to the tube 9'.



## R-5-78

This arrangement can be used with a particle emitter and an accelerator and director tube similar to tubes 1 and 9 of the preceding figures. However, tubes 1' and 9' of Figs. 5 and 6 are constructed in a different manner with regard to their cathodes and anodes.

Tube 1' contains a first electrode 11' exactly like that of the cathode 11 of tube 1, and an identical second electrode 39 furnished with a filament 39a. Tube 9' (Fig. 6) contains in its lower part a first electrode 17' with filament 17'a and an identical second electrode 40 with its filament 40a.

In normal operation, i.e., to produce radiation identical to that described in connection with Figs. 1 to 4, electrode 11' serves as cathode and electrode 39, given a positive potential, plays the role of the plate 10 in Fig. 1, the filament 39a being unheated. Electrode 40 and its filament 40a are disconnected; cathode 17' and plate 22' are supplied. as in Fig. 3.

To obtain particularly penetrating radiation, the polarities are reversed: Electrode 11' becomes an anode and its filament 11'e is disconnected, while electrode 39 receives the cathode supply and its filament 39a is heated; electrode 17' (with filament 17'a disconnected) and electrode 22' become anodes, while electrode 40 serves as cathode and its filament 40a is heated. For example, one can establish a potential difference of 250,000 V between 40 and 17', and 50,000 V between 40 and 22'. It is understood that in these conditions the cathode 39 emits to the left a stream of electrons which is concentrated, modulated and accelerated by the various coils and in the cyclotron, the polarities of which must of course be established in the proper direction. This stream of electrons is combined with the centimeter radiation emitted by the magnetron 7', resulting in tube 9' in the emission of very hard x-rays, modulated at the chosen frequencies, combined with the centimeter radiation of the desired frequency.

The assembly shown in Figs. 5 and 6 thus permits one to obtain at will either very hard x-rays or the radiation described in connection with the preceeding diagrams.

The following description, referring to Figs. 7 and 9, relates to certain

details of the apparatus used for modulating the electric current.

Fig. 7 represents schematically the apparatus for control of the resistance 29 and the variometer 30. The variable resistance 29 consists of a graphite helix 29a immersed in a conducting liquid 29b; another electrode 29c, also of graphite, partly immersed in the liquid, is set into up-and-down oscillations by a connecting rod 41a linked to a fly-wheel 41. The fly-wheel is set in rotation, through the intermediary of a worm transmission 41b, by an axle 42 which can be driven, thanks to a double clutch 42a, 42b, either by a motor 43, or by the shaft 30a of the variometer 30. The variometer 30 is driven by a motor 44 by ways of the worm transmission 44a.

## R-5-78

If the fly-wheel 41 is driven by the motor 43 at the proper speed, the resistance 29 causes the supply current of the electromagnets 13 and 23 (Figs. 1 and 4) to vary at the chosen rhythm which as we have seen can be between 30 and 120 pulsations per minute and which can be checked by means of a rotation counter shown schematically in 45. In this case, the motor 44 of the variometer 30 can be stopped and the remainder of the installation is then not pulsed. If, on the contrary, the fly-wheel 41 is engaged in 42b and disconnected from 42a, the motor 44 activates the variometer 30 and the resistance 29 at the chosen rhythm.

The speed of rotation of motors 43 or 44 can be regulated at the required speed, corresponding visibly to the cardiac rhythm of the subject, by acting upon the excitation of these motors by means of a manually adjustable rheostat. If one prefers to regulate the speed of motors 43 or 44 in direct accord with the cardiac rhythm of the subject, one can use an assembly such as that represented schematically in Fig. 8: At 46 there is a contact microphone which, when placed over the subject's heart, produces impulses. These are amplified in the circuit shown and applied to an electromagnet at 47 with a moving core which activates a rheostat; this in turn regulates the current running the motors 43 or 44.

Fig. 9 shows schematically the principle of the oscillating circuit 35. The rectified potential, adjustable between 5000 V and 70,000 V by means of rheostat 34 (Fig. 4) is applied between the terminals 48 and 48a. Terminal 35c (which is also connected to electrode 25, Figs. 2 and 4) is connected to the neutral point on the high tension side of the transformer which is a component of the step-up assembly 33 (Fig. 4). The terminals 49 and 49a receive the heating current produced by the resistance 29. The variable condensers 50 and 50a make it possible to regulate to the desired wavelength (which, as seen, is between 1 m and 18 m) the current available at the output terminals 25a and 25b of the oscillator shown.

The modes of implementation described have been successfully carried out but it is self-evident that these are only examples, and that they might be modified, notably by substitution of equivalent techniques, without going beyond the bounds of the invention. In particular, the electron gun 1 or 1' could be replaced by another

charged particle generator.

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Resume'

The invention includes especially:

1. A procedure for obtaining a combination of radiations of different kinds capable of penetrating matter, especially of intimately penetrating living tissues in order to produce in them certain effects and more particularly in human tissues with a therapeutic effect in mind, consisting of the emission in a cavity of a stream of electrically charged particles, upon which is imposed electromagnetic radiation in the centimeter wavelength range, and the guiding of the resulting radiation emerging from the cavity toward the target to be penetrated.
2. Types of implementation exhibiting the following features taken separately or in the various possible combinations:
  - a. The centimeter radiation has a wavelength between 3 cm and 80 cm;
  - b. This wavelength is set at the value found by experience to be most suitable for the tissues to be penetrated, e.g., 14 cm for liver and 19.5 cm for spleen;
  - c. The particle stream is accelerated by magnetic and electric fields such as those which are used in particle accelerators;
  - d. The resulting radiation is accelerated and guided, before its emergence from the cavity, by means of electric and magnetic fields;
  - e. The resulting radiation is guided, before its emergence from the cavity, by means of deflecting and/or reflecting surfaces;
  - f. The stream of particles and/or the resulting radiation are concentrated and accelerated by means of individual magnetic fields modulated at a frequency between 300 and 900 Hz, the highest frequencies being used to produce hard rays and the lower frequencies to produce soft rays;
  - g. The emission of the particle stream, as well as the acceleration and concentration of the radiation resulting at its exit from the cavity, are aided by individual magnetic fields of temporally variable intensity,

advantageously pulsed at a rhythm between 30 and 120 pulsations per minute and preferably at the cardiac rhythm of the subject;

h. The assemblages for production of the resultant radiation are pulsed in their entirety at the same rhythm as the magnetic fields according to g;

i. The stream of particles and/or the resulting radiation are accelerated and concentrated by direct magnetic and/or electric fields modulated at a wavelength between 1 m and 50 m and preferably between

## R-5-78

1 m and 18 m, this wavelength being advantageously chosen as that which is known in diathermy as suitable for the tissues to be penetrated or for the surrounding tissues.

3. An assemblage making it possible to obtain a combination of a stream of electrically charged particles and a beam of centimeter electromagnetic waves in order to penetrate intimately and to irradiate living tissues and particularly human tissues, the said assemblage comprising at least a particle emitter, means for channeling said particles in a cavity serving as waveguide for an emitter of electromagnetic radiation of which the wavelength is included in the range of centimeter waves and preferably adjustable from 3 cm to 80 cm, means for generating in the cavity magnetic field for acceleration and concentration and means for concentrating and accelerating the resulting radiation at the exit of the cavity.

4. Modes of implementation with the following details taken separately or in the various possible combinations:

a. The particle emitter is an electron gun of which the anode is at the end of the cavity and the cathode is situated further along, this cathode being hollow and placed in the magnetic field of an electromagnetic in order to ensure emission of a stream of particles towards the mouth of the cavity;

b. The cathode consists of a rim connected by two aligned spokes to a hub, the said rim being provided internally with an annular housing containing a heated filament and the said housing communicating with a number of holes arranged annularly and traversing the rim transversely;

c. The cathode is made of a metal of valency close to the mean valency of the chemical molecules comprising the tissue to be penetrated;

d. The cathode is of tungsten or preferably of molybdenum;

e. The cavity contains a rare gas, preferably argon, under a vacuum of



the order of 2 mm Hg;

f. The cavity contains a duct carrying at least part of the stream of particles to a cyclotron and a duct bringing back into the cavity the particles accelerated in the cyclotron;

g. The cavity passes through several coils, the supply current for the various coils being capable of undergoing modulation at different frequencies;

h. The downstream end of the cavity is composed of a tube containing, in the part from which the resulting radiation must emerge, a cathode and an electromagnet which may be identical to the cathode and the electromagnet according to para. a, an anode near the other end, and a rotary deflector consisting of a number of plates arranged *en*

## R-5-78

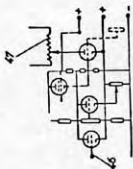
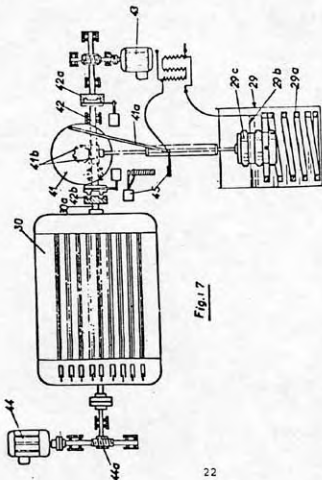
*couronne* on a rotor facing the incident radiation at such an angle that the radiation deflected and/or reflected is directed toward the cathode, several coils whose supply current can be modulated being distributed over the length of the tube;

- i. This tube also contains electrodes supplied by alternating current generating an electric field at the level of the rotary deflector, each of the said electrodes being surrounded by a bobbin of which the supply current can be modulated;
- j. Methods are anticipated for modulating, at an adjustable rhythm between 30 and 120 cycles per minute, the supply current of the electromagnetic according to a and h, and preferably to modulate the supply current of the rest of the assemblage at the same rhythm;
- k. Methods are anticipated for modulating, at a frequency between 300 and 900 Hz, the supply current of the bobbins surrounding according to i and one or several coils according to g;
- l. Methods are anticipated for modulating, at an adjustable wavelength between 1 m and 50 m and preferably between 1 m and 18 m, the supply current of the electrodes according to i, of one or several of the coils generating the magnetic field of the cyclotron;
- m. The electrodes of the electron gun consist of two electrodes identical to the cathode according to a, b, c, or d, the cathode of the tube according to h is replaced by a double electrode reproducing the arrangement of the electrodes of the electron gun, and methods are anticipated for reversing at will and simultaneously the polarities of these two pairs of electrodes and the direction of flow of the current supplying the acceleratory coils, a first pattern of polarities assuring the functioning of the apparatus in the conditions which are laid down according to a, and a second pattern of polarities assuring emission in the cavity of a stream of electrons combined with the centimeter radiation and giving rise, at the exit of the said tube, to emission of very hard x-rays.

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Fig. 16Fig. 17

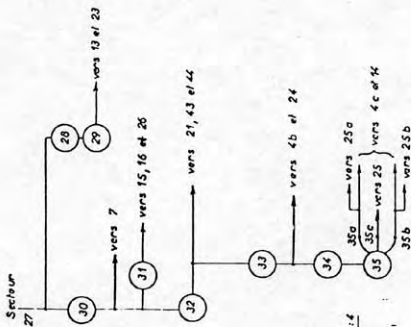


Fig. 4

Fig. 9

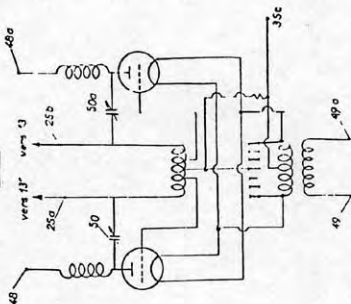




Fig. 3

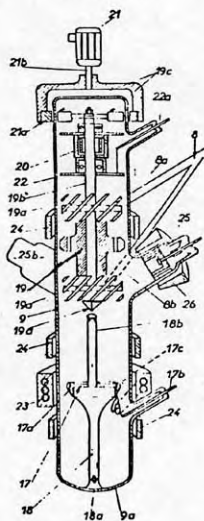
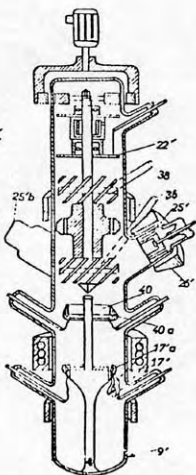
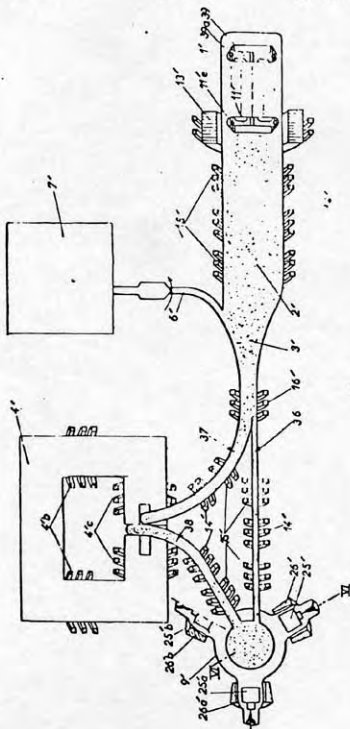


Fig. 6







# Utilizing Scalar Electromagnetics To Tap Vacuum Energy

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## ABSTRACT

Based on E.T. Whittaker's previously unnoticed 1903-1904 papers which established a hidden bidirectional EM wave structure in a standing forcefield free scalar potential, a method of directly engineering the ambient potential of the vacuum has been developed and realized experimentally.

Adding Whittaker's engineerable hidden variable theory to classical electro-magnetics, quantum mechanics, and general relativity produces supersets of each discipline. These supersets are joined by the common Whittaker subset, producing a unified field theory that is engineerable and tested.

By treating the nucleus of the atom as a pumped phase conjugate mirror, several working model energy units have been produced which excite and organize the local vacuum, increase the local virtual photon flux between local vacuum and nucleus, establish coherent self-oscillations between the local excited vacuum and the affected nuclei, utilize the self-oscillating standing wave for self-pumping of the nuclei/mirrors, introduce a very tiny signal wave to the mirrors, and output into an external load circuit a powerful, amplified, time-reversed phase conjugate replica wave at 60 Hertz frequency and nominal 120 volt sine wave power.

Several models have been built, ranging from 6 watts early on to one of 5 kilowatts. Both closed batteryless systems with damped positive feedback and open loop systems with battery-powered input have been successfully built. Open loop power gains of from  $5 \times 10^4$  to  $1.5 \times 10^6$  have been achieved.

Antigravity experiments have also been successfully conducted where the weight of the unit was reduced by 90% in controlled experiments, with a signal wave input of 175 microwatts and an output of 1 kilowatt.

The basic theory of the device is briefly explained and experimental results presented. In the demonstration session, a videotape of one operating open-loop unit with a  $1.5 \times 10^6$  power gain is planned, as is the demonstration of an actual working model closed-loop system with a nominal rating of 500 watts, and without external power input of any kind.

The units are solid state, with no moving parts. Each of them comprises a unique form of self-powered vacuum triode of extraordinary gain, where the cathode power and plate power are freely furnished by the vacuum, and only a small grid signal need be furnished either from an external power source or by clamped positive feedback from the device's output. The output is negative energy, and some of its unique characteristics are pointed out.

Implications of the experimental application of the Sweet vacuum triode, the Bearden approach to the nucleus as a pumped phase conjugate mirror, and the unified field theory based on Whittaker's engineerable hidden variable scalar EM potential theory are also briefly addressed.

## SCALAR ELECTROMAGNETICS

In 1837 Sir W.R. Hamilton said,

*"The notion of time may be unfolded into an independent pure science... a science of pure time is possible."*

As is well-known, the fundamental units utilized in physics are arbitrary. It is even possible to construct all of physics on a single unit, time. This oddity shows the truth in Hamilton's statement; it is even more odd, because quantum mechanically time is not an observable. This means that the observable world can be modeled completely in terms of the nonobservable, which is essentially what modern quantum mechanics is now doing.

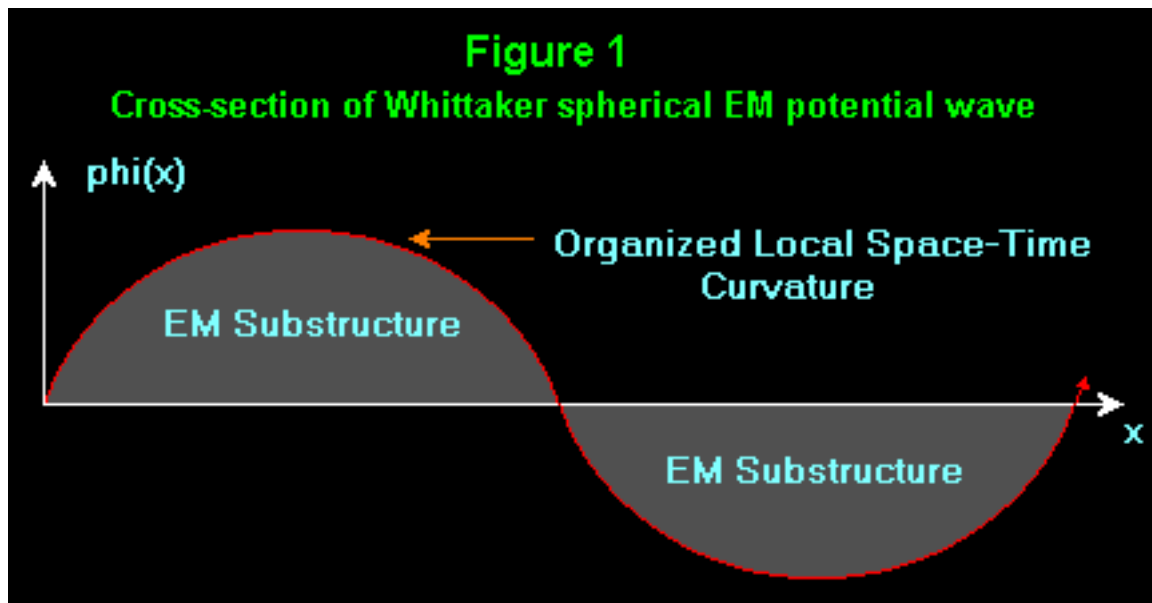
Hamilton viewed his magnificent quaternions as essentially having accomplished the mathematical structuring of time. Maxwell's original EM theory, as is well-known, was modeled in Hamilton's *quaternions*, not in the highly curtailed Heaviside/Hertz vectors erroneously taught today as "Maxwell's theory."

Not a single one of the present so-called "Maxwell's" vector equations ever appeared in a book or paper by James Clerk Maxwell.

For some years the author has worked on an extended electromagnetics theory, involving the scalar component of the quaternion. [[Ref. 1](#)]

In Maxwell's original *quaternion* theory, this scalar component often remains when the directional components zero. Further, it then enfolds vectors and functions of vectors inside, in a hidden variable manner. Specifically, the author has patterned a unified field theory concept upon the previously unnoticed but remarkable early work of E.T. Whittaker. [[Ref. 2](#)]

In two fundamental papers in 1903 and 1904, Whittaker showed that all present vector EM can be replaced by scalar potential interferometry, and that bidirectional harmonic EM plane wave sets could be used to produce a standing wave of force-field-free potential (Figures 1 and 2).



**NOTE: SHAPE MAY BE ALL ABOVE OR ALL BELOW  
 AMBIENT VACUUM POTENTIAL**

Thus Whittaker anticipated the quantum mechanical Aharonov/Bohm effect by 55 years, including extending it to the macroscopic world instead of the mesoscopic realm where it has been established to date. [[Ref. 3](#)]

In modern terms, Whittaker showed how to turn EM wave energy into electrogravitational potential energy, then how to interfere two such scalar potential waves to recover electromagnetic energy, even at a distance. [[Ref. 4](#)]

This unrecognized work is of great importance: when applied to modern physics, it produces supersets of quantum mechanics (QM), classical electromagnetics (EM), and general relativity (GR).

Further, all three extended disciplines unify on their common Whittaker subset, in a testable and engineerable fashion. [[Ref. 5](#)]

# Composition of the Scalar Potential $\phi$

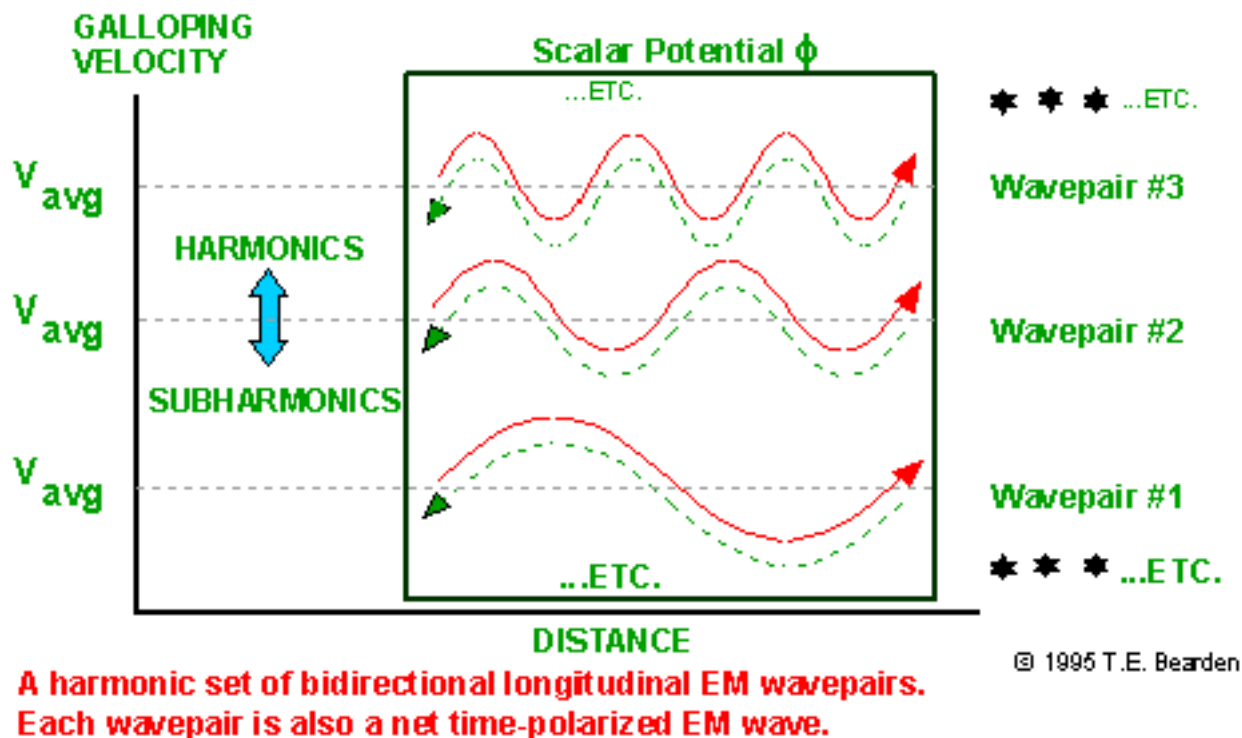


Figure 2. Infolded EM plane wave structure of a Whittaker wave.

## The Nucleus As a PPCM and Triode

The author has also considered the highly nonlinear nucleus of the atom as a pumped phase conjugate mirror (PPCM), having found no other consideration of same in the literature.

The author also dubbed a PPCM a "triode," since the amplified phase conjugate replica of the signal wave is much like the amplified output of a triode, and the signal wave input to a PPCM is much like a triode's grid signal input. The PPCM pump wave then corresponds roughly to the power input to the cathode and plate of a triode. [[Ref. 6](#)]

# Transverse EM Wave Pumping of PCM

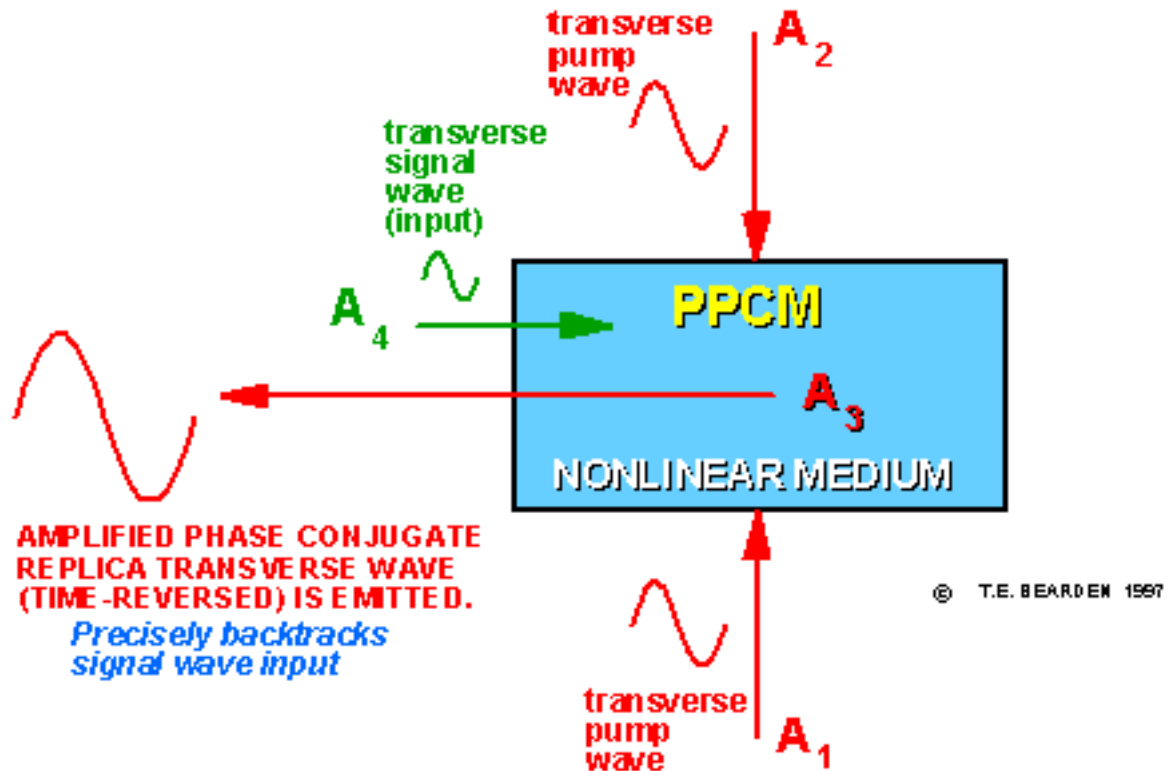


Figure 3. A pumped phase conjugate mirror.

## VACUUM TRIODE BACKGROUND

About seven years ago, the author was privileged to see and examine an invention of Mr. Floyd Sweet, that produced about 6 watts of electrical power from the vacuum itself.

This remarkable device, which the author dubbed a *vacuum triode*, in a single unit utilized most of the scalar EM concepts the author had so painfully and slowly formulated over the years.

Sweet, a brilliant inventor with a remarkable knowledge of magnetics, had utilized barium ferrite magnets and special coils to produce a solid-state device that successfully tapped the vacuum energy.

The author quickly put together a theoretical concept for the energy-tapping mechanism, based on treatment of the nucleus as a PPCM and Whittaker's scalar EM potential unified field theory. [Ref. 7]

The author furnished the technical concept, treating the nucleus as a pumped phase conjugate mirror, to the inventor along with copies of Whittaker's papers.

## Sweet's Synthesis and Extension

Sweet is also a brilliant EM theoretician, working in four, five, or even six dimensions with ease. He immediately synthesized the entire PPCM and Whittaker theory, and developed a complete theoretical treatment of the device. [[Ref. 8](#)]

He also increased the nuclear potential utilized in the activated nuclei of the device, which increased the pumping energy and hence the energy output. He next produced an open-loop vacuum triode (VT) with an output of 500 watts, for an input of 33 microwatts.

Thereafter he produced several other models, including closed-loop systems and one with 5-KW output.

## Purpose of This Paper

Our purpose is to explain the detailed scalar EM concept of the operation of the vacuum triode, since it is a universal method for cohering and tapping useful EM energy from the vacuum.

The author believes that this mechanism is the fundamental mechanism that must be invoked in any over-unity device that electromagnetically extracts vacuum energy as electromagnetic effects.

We also intend to demonstrate a full working model of the device at this conference. Sweet's detailed theoretical treatment will be completed and submitted to a major journal shortly, to complete the scientific exposition of the new methodology.

I must also express my deep admiration for my brilliant inventor colleague. It has been a privilege to work with him, though under great difficulties and at a distance. He has developed several other related devices that are of great importance to the emerging new physics of *vacuum engineering*, in the sense referred to by Lee. [[Ref. 9](#)]

To mention just one, he has produced a magnetic lens which apparently can directly display the vacuum's virtual particle flux, or a good analog of it. So far as I am aware, this is the only extant instrument today that can perform this feat.

When the vacuum triode has been proven to the scientific community, it is my intention to nominate Sweet for the Nobel Prize he so richly deserves, and seek high scientific endorsements for the recommendation.

## INTRODUCTION

### Entropy

As is well known, in any closed dynamic system the order existing in it will gradually be dissipated, as more and more interactions occur. This leads to the notion of *entropy* as the increasing disorder in such systems. The assumptions are

1. a closed system, and
2. a positive flow of time for the components of the system.

Actually no such thing as a completely closed system exists in nature. Every mass system is open to virtual particle flux exchange with the vacuum, for example, particularly in the nucleus of its atoms, where the bulk of its mass is located.

However, the closed system assumption is reasonably approximated by a great many systems which are in stable thermodynamic equilibrium, or nearly so.

On the other hand, in an open system far from thermodynamic equilibrium, the second law of thermodynamics does not necessarily apply, because the system violates both the closed system assumption and its equilibrium approximation. [[Ref. 10](#)]

## Time Reversal

Since being discovered in 1972 in the open Soviet literature, the time-reversed (phase conjugate) EM wave has also been known. The phase conjugate EM wave is truly time-reversed, as has been shown experimentally. Since the time-reversed EM wave violates the second major assumption, the second law of thermodynamics need not necessarily hold for time-reversed entities.

Putting all this together, if one wishes negentropy and hence increased energy in a system, the candidate suggested would appear to be a system that was strongly

1. open loop,
2. time-reversed, and
3. far from thermodynamic equilibrium.

A good overview of time-reversal in physics has been provided by Sachs. [[Ref. 11](#)]

## Engineering the Nucleus

Since the nucleus already provides a myriad of time-reversed processes, engineering the nucleus of an atom is a very good candidate for practical negentropy.

To engineer the nucleus directly, a Whittaker potential is first artificially constructed, by composing a harmonic set of phase-locked EM wave/antiwave pairs. It is accented that the antiwaves must be true phase conjugates; otherwise they will not constitute a gradient-free Whittaker standing potential wave.

In addition, at least one harmonic interval must be used, and additional harmonic sets are most



desirable. The reason is that a space-time lattice must be formed in the vacuum, where the energy is additive spatially but opposite in  $t$ -dot, the rate of flow of time, in the fourth dimension.

So a time-structure is required as well as a spatial structure, which is what is provided by  $n$  bidirectional harmonic Whittaker EM wave sets, where  $n$  is an integer greater than 1.

Once a specific Whittaker structure has been chosen, the local lattice of space-time is established. This establishes phase-locked lattice groupings of coupled photon/antiphoton pairs, or of *gravitons*. In turn, this Whittaker-structured vacuum now contains specific graviton *vacuum engines*, which directly engineer and structure the vacuum's virtual particle flux (VPF) exchange with the nucleus. [\[Ref. 12\]](#)

The nucleus is highly nonlinear, hence strongly phase conjugative, or time-reversed. The ambient potential of the local vacuum surrounding the nucleus is in a violent virtual photon exchange with it, accounting for its electrical charge.

Since the preponderant charge is positive, from the viewpoint of the ordinary light observer whose light interacts with electron shells, the nucleus may be taken to exhibit time reversal (phase conjugation).

## Energy, Time, and Gravitons

We take the definition of "energy" to be fundamentally an ordering imposed upon the VPF of vacuum. We take photon scattering from the electron shells of atoms to be the fundamental exterior mechanism producing forward flow of external observer time.

It then follows that "time's arrow" for the EM observer is due to the universal scattering of photons from electron shells.

In this view, forward (positive) time flow and entropy are due to the same primary action: photon scattering from electron shells. It is unfortunate that the concept of "positive" energy has been tied to, and defined in terms of, the scattering and dissipation of VPF order as *work*, or energy expended.

Via the standard labeling, then, negative energy is the reconstitution of order in the vacuum VPF. It should be noted that, in a PPCM, dissipative or external pump wave stress energy can be scavenged and re-emitted in perfect order as the phase conjugate replica. This is a *negentropic* process, for it is capable of turning disorder into order. [\[Ref. 13\]](#)

In the time-reversed PPCM nucleus, we should expect to see appreciable *negative energy*—that is, energy removed from the EM scattering domain. This includes the binding energy of the nucleus, and the gravitational (G) potential energy of the EM energy removed from the "scattering interaction realm" and locked into the mass.

Following Sakharov, we hold that the G-field is not a fundamental field of nature, but a composite

caused by, or made from, other fields. [\[Ref. 14\]](#)

To the first order, we assume the G-potential is comprised of coupled photon/antiphoton pairs, on the average, where the statistical coupled spin-2 photon/antiphoton pair is a *graviton*. [\[Ref. 15\]](#)

We follow the modern view of the field: because of vacuum fluctuations, rigorously one no longer speaks of "the" field, but of the *probability of a particular field configuration*. [\[Ref. 16\]](#)

We also hold the vacuum to be composed of potentials, and regard the three terms *space-time*, *vacuum*, and *scalar potential* as essentially synonymous.

### **Newton's Third Law and the Detection Process**

The VPF EM stress of the local vacuum immediately surrounding the nucleus may be decomposed a la Whittaker into opposing bidirectional EM plane waves/forces. Thus the nonlinear nucleus may be regarded as a pumped phase conjugate mirror, normally with a gain of one.

In this view, Newton's third law reaction force is generated because the so-called "photon" interaction with an atom is in fact a graviton reaction involving a photon/antiphoton pair that is decoupled.

The decoupled photon normally is absorbed and reradiated by an orbital electron, while the decoupled antiphoton interacts with the nucleus, producing a time-reversed twin of the external force—or, in other words, Newton's third law reaction force, which gives a slight recoil of the nucleus.

Half of every measurement physicists normally make is discarded, with the missing half accounting only for Newtonian reaction in the meter or instrument, which is usually ignored.

The fact that half of our measurement interactions are ignored is occasionally discovered and noted by physicists, who may even write a paper pointing it out, but no change is instituted in the foundations. [\[Ref. 17\]](#) and [Ref 18\]](#)

### **Semiconducting Vacuum and Self-Oscillation**

The vacuum immediately surrounding the nucleus is structured by the nucleus, and is itself nonlinear and capable of acting as a *semiconductor*. [\[Ref. 19\]](#)

Since both this immediately local semiconductor vacuum and the nucleus it surrounds are highly nonlinear, then *nonlinear resonance* can conceivably be established between them.

Further, since the resonating system in such case is an open system away from thermodynamic equilibrium, the oscillation can be self-sustaining. Such self-oscillation of the pumping of a PCM is already well-known in the nonlinear optical literature, particularly with compounds containing barium. [\[Ref. 20\]](#)

# THE VACUUM TRIODE

## The Basic Concept

As is well-known, a stress can be decomposed into opposing sets of forces. But quantum mechanically, the forces we are interested in with our work here are all caused *electromagnetically*, by the exchange of virtual photons. Even mechanical force, according to QM, is caused in this manner. Thus opposing electromagnetic or mechanical "stress" sets of bidirectional EM forces are microscopically equivalent to the notion of *pump waves* in nonlinear optics.

Hence under the proper conditions, it follows that trapped EM stress energy of the vacuum can be utilized to "pump" the nucleus.

Treating the stress-pumped nonlinear nucleus as a PPCM, it follows that the stress energy of the vacuum can be tapped by a 4-wave mixing mechanism in the atomic nucleus, to provide amplified phase conjugate EM wave outputs from the atom in response to small signal wave inputs. [[Ref. 21](#)]

In the proper nonlinear material, the material may act as a PPCM, in which case there exists a suitable connection between the material's atomic nuclei and its external electromagnetic lattice bonds, and the amplified phase conjugate replica wave generated in the nucleus will be emitted from the material as an EM wave field. This field can then be tapped by suitable means and output to an external load circuit.

## Block Diagram of the Vacuum Triode

Figure 4 shows a basic block diagram of the vacuum triode process, utilized by Sweet in several laboratory vacuum energy devices. These devices have ranged from a nominal 500 watt output in a 6-lb. device to 5 kilowatts for a heavier unit. Gains have ranged from 50,000 to 1,500,000 for open-loop systems. Both open-loop and closed-loop systems have been built and tested.

Figure 4 shows a combined block diagram for either a closed-loop or open-loop system. In the open-loop system, a barium ferrite magnetic material is used as a pumped phase conjugate mirror.

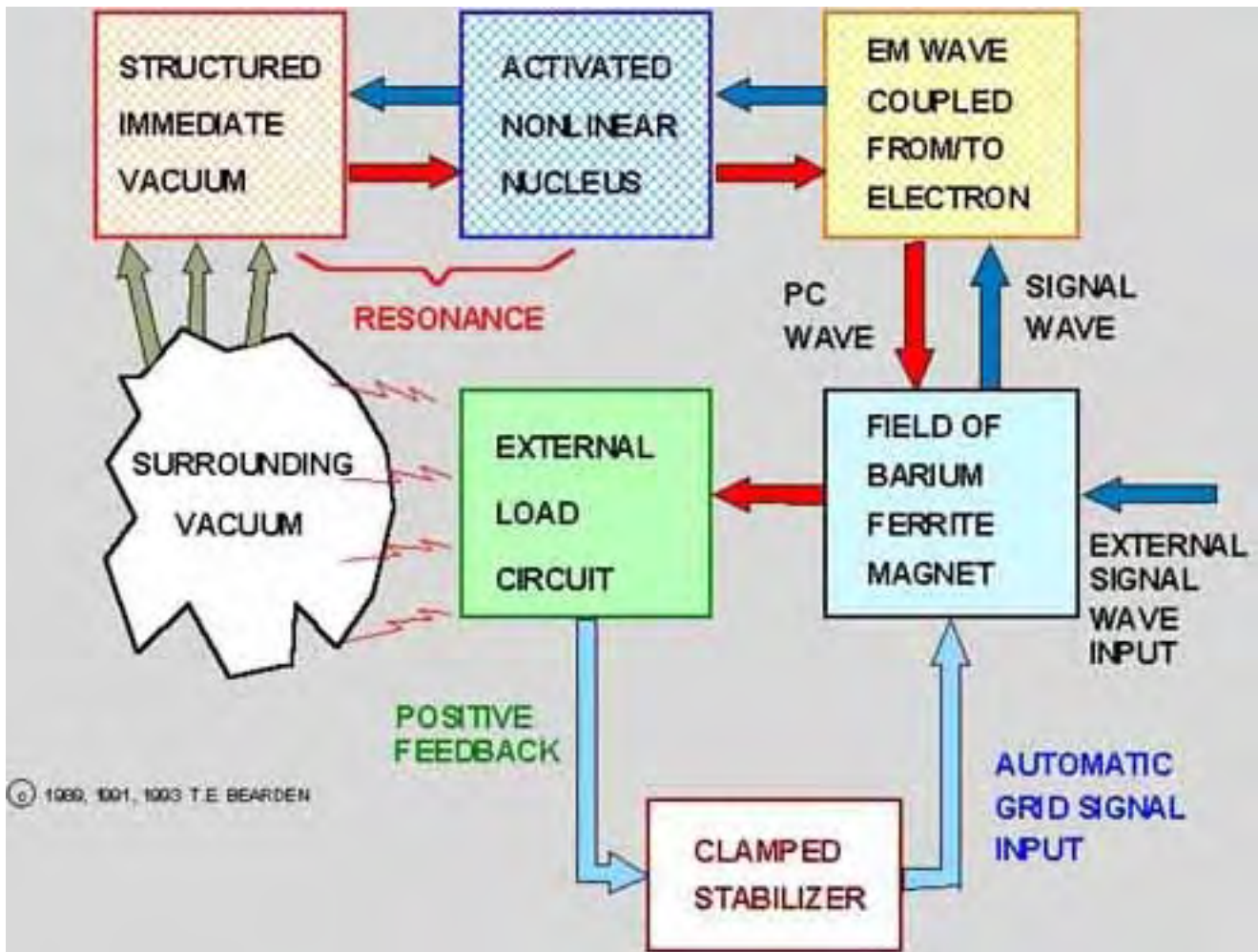
In the "standard" design, two opposing PPCMs are used. The advantage of this dual combination is the use of *self-targeting* (repetitive phase conjugation, signal by signal). This has the effect of

1. stabilizing the Whittaker field, and
2. producing a quantum potential between the two mirrors, so the mirrors and the Whittaker potential between them are essentially one single space-time entity.

Discussion of a quantum potential is beyond the scope of this paper, but the technical mechanism for creating one has been previously presented by the author on several occasions. [[Ref. 22](#)]

First we will explain the open-loop operation of the vacuum triode. In Figure 4, on the right an external 60 Hz, nominal 10 volt AC sine wave of several tens of microwatts in power is input into the stabilized field of the barium ferrite magnet structure, where it modulates the field, producing a signal wave input into the atoms of the material.

In the top right block, the EM signal wave interacts with the electron shell of an atom, which in turn is EM-coupled to the nucleus.



**Figure 4. The Vacuum Triode Concept.**

Thus an EM signal wave is input to the nucleus of the atom, which is highly nonlinear (middle top block). Earlier, Sweet had specifically conditioned the atomic nuclei with a proprietary process, wherein in the barium nucleus a trapped 60 Hz scalar EM spherical wave resonance (self-oscillation) exists between the structured semiconductor vacuum immediately surrounding the Ba nucleus.

In the same *activation* process, the ambient potential of the surrounding vacuum was raised and stabilized, in the two leftmost blocks.

At this point the nonlinear nucleus is effectively self-pumped by the trapped, excited, spherical scalar wave oscillation between the structured semiconductor vacuum and the nucleus. The nucleus is now a strongly pumped phase conjugate mirror.

Consequently, when the signal wave input arrives, the PPCM nucleus emits an amplified phase conjugate replica (PCR) wave, which precisely backtracks the input signal wave. This precise backtracking (perfect retroreflection) is referred to as the "distortion correction theorem."

In short, the powerful PCR wave returns precisely toward the external source, passing through the electron shells and arriving in the perturbed barium ferrite magnet assembly field, where it perturbs the field.

A transformer-like system then extracts this magnetic field perturbation and conducts it to the external load circuit.

However, the PCR contains *negative* energy. Short of the load, the internal circuits run cool, rather than heating. This is a signature of a true vacuum energy tapping device.

Indeed, if the output leads of the Sweet vacuum triode are physically shorted together, a brilliant flash occurs, and the leads instantly ice as if dipped in liquid oxygen. This is another signature of the true negentropic over-unity vacuum tap.

Note that the energy extracted from the semiconducting vacuum adjacent to the nucleus is just instantly replaced by the surrounding vacuum's inexhaustible energy pool. This is an open-loop system, with a hidden energy source: the intense virtual particle flux of the vacuum's ambient charge.

It is not possible to exhaust that flux, which is often calculated to have an energy density of some  $10^{100}$  or more grams per  $\text{cm}^3$ , if the energy were cohered and condensed into mass.

As can be seen, even a VT gain of  $1.5 \times 10^6$  represents a "vacuum tap" of an incredibly small efficiency, on the order of  $10^{-100}$  or so. However, the vacuum "river" is so energetic that such efficiencies are quite sufficient.

We accent that the barium ferrite magnetic material must be *activated* so that stable self-oscillation between the barium nucleus and the surrounding semiconductor vacuum exists. Although self-oscillating/self-pumped PCMs are known at optical frequencies, Sweet has discovered and perfected a brilliant methodology for activating PPCM nuclei at ELF frequencies.

In a resistive load such as light bulbs, the resistive material accomplishes repetitive phase conjugation. Thus in the resistor, half the total energy is expressed as photon or dissipative energy in the external (electron shell) level.

As the excited electrons decay, they emit scattered EM energy as light and heat. This is an *exothermic* interaction. The other half of the total energy reacts in the atomic nuclei, as a phase conjugative or *endothermic* interaction.

We strongly accent that, Whittaker-wise, there are two electromagnetic channels and two kinds of EM:

1. *external* EM, the common electron-shell interacting, entropic, scattering, time-forward kind, and
2. the *internal*, unsuspected, hidden variable, nuclei interacting, negentropic, reordering/convergent kind.

Internal EM travels strictly between atomic nuclei, normally not reacting with electron shells unless a pumped phase conjugate mirror reaction is invoked in the nucleus to produce a gain somewhat greater than unity.

Thus if we wish to communicate with atomic nuclei directly, and engineer them directly, we must utilize the internal EM channel via applied Whittaker methods.

## Antigravity Tests

Inherent in the preceding discussions is the possibility to turn EM energy into gravitational energy of either sign. In other words, one should be able to utilize Sweet's vacuum triode to produce and demonstrate antigravity.

Indeed this is the case. Sweet has also discovered the special alterations necessary to perform straightforward transformation of the internal energy in the nucleus to antigravitational energy, producing a unilateral thrust upward.

Note that the bulk of G-potential gradient (G-force-field) occurs Whittaker-wise at ELF frequencies. This explains why nonlinear phase conjugate opticians do not notice direct antigravity effects.

At the optical frequencies at which they work, the effects are so miniscule that they are negligible. This is readily explained as follows: In QM, the quantum (photon) is comprised of action (angular momentum), not just energy. It is rather like a "piece of energy welded to a piece of time, with no seam in the middle."

Since quantum change occurs in quanta, the decoupling of the energy and time components, in the continual interaction of photons with matter, exchanges energy between G-potential of vacuum and trapped mass of the atom or particle. In this exchange, small increments of time are continually being formed (and unformed, as photon emission occurs).

Consequently, each mass is moving forward in time in small incremental jumps, usually of exceedingly small magnitude. However, the energy and time trapped in a photon are canonical. The greater the piece of energy, the smaller the piece of time, and vice versa.

So if one wishes to stress the "rate of flow of time" significantly, one needs to produce large amounts of photons that have very large pieces of time, and consequently little pieces of energy.

Since the energy of the photon is directly proportional to its frequency, this means that the lower

frequency photons have larger time increments, and hence endure over many "regular-sized photon absorption/emission changes" to appreciably stress the rate of time flow/production.

The bottom line is that the standard pumped phase conjugate mirror can be adapted to produce antigravity at ELF frequencies, but precisely the same adaptation at optical frequencies will have negligible effect.

With this in mind, the author requested Sweet to perform an antigravity experiment to prove the thesis. With Sweet's proprietary adaptation of his vacuum triode/PPCM, the experiment produced rather straightforward but spectacular results, as shown in Figure 5.

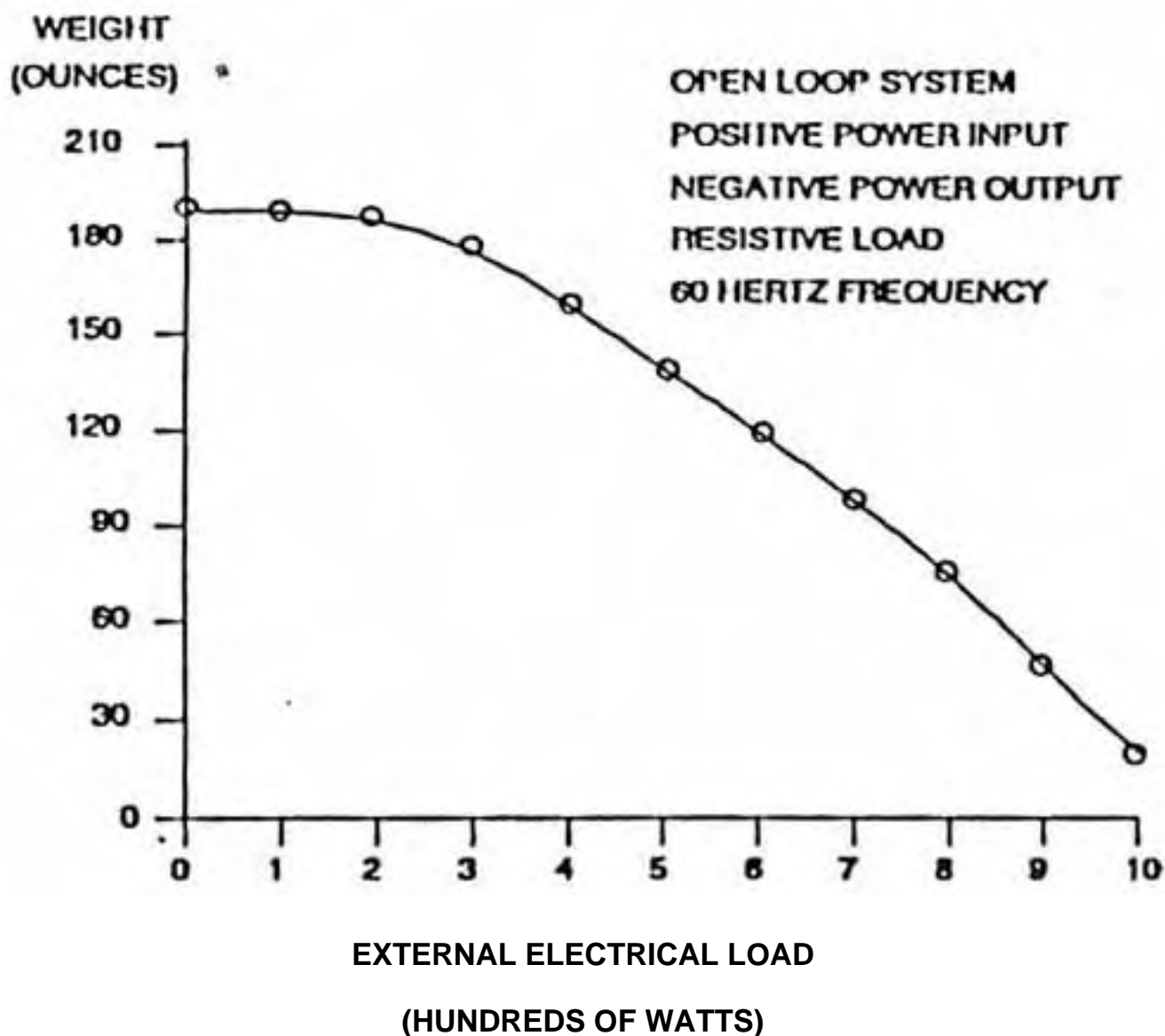
The experiment was performed as follows: Rigged for antigravity, the 6-lb. device was placed on a scale so that its weight could be continuously monitored. A special external load box was utilized in which multiple electric light sockets were connected in parallel.

Then the external load draw was adjusted by merely screwing in 100-watt lamps, one at a time, with measurement and observation pauses in between. The output of the device was 120 volt, negative AC sine-wave power at 60 Hz.

For each 100-watt increment, the load power was recorded and the weight was carefully recorded. The results are shown in the rather smooth, classic curve shown in Figure 5.

At 1,000 watts load draw, the previously 6-lb. device had reduced its weight due to gravity by 90 percent. At that point the signal-wave (grid) input to the open-loop vacuum triode was only 175.4 microamps at 10 volts, or just under two milliwatts.





**Figure 5. Antigravity Test of Sweet's Adapted Vacuum Triode.**

We accent that the nominal two milliwatt input is only a gating signal. It is the organized, gated vacuum energy that is performing the action.

The experiment was stopped short of actual hovering and flying due to safety considerations. With the specific adaptation, magnetic monopoles are deposited in the magnet materials, producing internal tensile stress.

Since no explosive controlled facilities were available, and there was no wish to destroy the VT, the experiment was terminated at 90% antigravity performance.

It was completely successful, and adequately demonstrated the validity of the unified field theory concepts utilized in our approach.

## CONCLUSIONS

A new unified field theory has been developed, tested, and at least partially verified experimentally.

The concepts of the theory have been applied by Sweet in a series of inventions that produce readily usable, safe electromagnetic power directly from the vacuum.

The methodology lends itself to formulation of power devices without moving parts. Antigravity, predicted by the concepts of the theory, has been demonstrated in actual practical demonstrations on the laboratory bench.

Though not discussed in this paper, application of the concepts and methodology to a large variety of other fields, such as medical reversal of aging and curing of almost the entire range of present debilitating diseases, has been previously pointed out. [[Ref. 23](#)]

We have also pointed out the mechanism for Kaznachejev's cytopathogenic effect, or the induction of cellular pathology at a distance by electromagnetic means. [[Ref. 24](#)]

We have also pointed out the specific mechanism involved in Priore's device, which in rigorous laboratory animal testing under the auspices of eminent French scientists, demonstrated nearly 100 percent cures for terminal cancers and leukemias, sleeping sickness, arteriosclerosis, and other debilitating diseases. [[Ref. 25](#)]

We believe we have also produced the concepts enabling the direct engineering and therapeutic manipulation of Popp's master cellular control system. [[Ref. 26](#)]

We conclude that the concepts we have utilized and experimentally demonstrated are universal, as implied by any notional unified field theory.

Our conclusion is that the concepts, theory, and experiments, taken together, are sufficient for investigation and replication by the scientific community.

If replicated and fully substantiated, we believe the work will directly point the way to, and usher in, a new unified field theory physics of universal application.

## **SPECULATED IMPLICATIONS**

As can be seen, the implications of the new approach are profound. The authors believe they have ushered in the forerunner of a vast new physics, one which will change our lives, and our view of physical reality, in ways previously undreamed of.

By mastering, controlling, and gating the vast, incredible energy of the seething vacuum, we can power our automobiles, flying machines, and technology inexhaustibly. Further, it can be done absolutely cleanly; there are no noxious chemical pollutants to poison the biosphere. With practical antigravity, ships can be developed to cross the solar system as readily as one crosses the ocean today.

And the ships, automobiles, and technology will never run out of fuel; the inexhaustible vacuum fills

every system, everywhere, to overflowing.

Not discussed in this paper, it turns out that living systems, faced with the problem of achieving negentropy so as to maintain their form in a dissipative external physical reality, have always used the hidden internal channel for such things as mind, thought, cell control, and living functions.

With the new methodology, one now faces the advent of access and engineering of the mind and life of the observer as readily as the observer's physical body.

Transmutation of the elements, control of the weather, lighting and powering our cities and homes cheaply and cleanly, and provision of plenty for everyone is the vista for the future. We can in fact clean up the radioactive wastes, rid ourselves of coarse nuclear and petroleum powerplants.

We strongly stress that, with the ability to engineer the Schroedinger equation itself, the new methodology allows the direct engineering and control of quantum change, and hence of physical reality itself.

The methodology is extendable to hyperdimensions; nested virtual levels of the vacuum are already precisely that. The author has already pointed out the application of this emerging technology to the absolute cure of diseases such as AIDS, cancer, leukemia, etc., and shown that the Priore device in France already proved the efficacy of the application in the 60s and 70s.

We shall be able to rid ourselves and our descendents of diseases. With direct access to the actual software of life and mind, in the future we should be able to achieve levels of education previously unattainable, by directly inputting the relevant software.

Previously we have also pointed out that four nations of the world are already embarked on weaponization of scalar EM unified field technology. It is sobering to think that, in addition to having the ability to make our planet a paradise for humankind, we also will have the ability to make it a hades.

For that reason, we are doing our best to clarify the technical concept and the theory in this 1991, hopefully with the view that humankind will seize upon the positive aspects, and develop and apply this technology for the betterment of all people everywhere.

Long ago, Albert Einstein said these words:

*"It would of course be a great step forward if we succeeded in combining the gravitational field and the electromagnetic field into a single structure. Only so could the era in theoretical physics inaugurated by Faraday and Clerk Maxwell be brought to a satisfactory close."*

And Teilhard de Chardin wrote:

*"Someday, after we have mastered the winds, the waves, the tides and gravity, we shall harness for God the energies of love. Then for the second time in the history of the world man will have*

*discovered fire."*

The authors fervently believe they have come upon fire for the second time, as allegorized by de Chardin. If so, let us all use the knowledge wisely.

## REFERENCES

1. Maxwell's original quaternion EM theory is contained in some 200 quaternion equations and differs extensively from the restricted Heaviside/Gibbs vector interpretation universally taught today as "Maxwell's Theory." See James Clerk Maxwell, *A Treatise on Electricity and Magnetism*, Oxford University Press, Oxford, 1873. The third edition is by Dover, 1954.
2. E.T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Math. Ann.*, Vol. 57, 1903, p. 333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, pp. 367-372. The first paper was in fact a detailed theory of the scalar standing potential wave that Nikola Tesla discovered four years earlier, on the night of July 3-4 1899, being radiated from thunderstorms, which he entered in his *Colorado Springs Notebook* on the morning of the 4th. More recently the Whittaker structure (WS) inside potentials, including the Schroedinger potential, has been shown by V.K. Ignatovich, "The Remarkable Capabilities of Recursive Relations," *Am. J. Phys.*, 57(10), Oct. 1989, p. 873-878, without credit to Whittaker or to the presence of such structured scalar potentials in Maxwell's original quaternion EM theory. These WSs are universal to scalar potentials; e.g., for the same in acoustics, see Richard W. Ziolkowski, "Localized Transmission of Wave Energy," *Proc. SPIE*, Vol. 1061, *Microwave and Particle Beam Sources and Directed Energy Concepts*, Jan. 1989, p. 396-397.
3. See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Phys. Rev.*, Second Series, 115(3), Aug. 1, 1959, p. 458-491. This paper pointed out the primacy of the potentials. Instead of being causative agents, the force fields are actually effects generated from the potentials. This is in complete violation of both classical electromagnetics and classical dynamics, but it is absolutely required by quantum mechanics. For an extensive discussion of the Aharonov-Bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The Quantum Effects of Electromagnetic Fluxes," *Rev. Mod. Phys.* 57(2), Apr. 1985. See Bertram Schwarzschild, "Currents in Normal-Metal Rings Exhibit Aharonov-Bohm Effect," *Physics Today*, 39(1), Jan. 1986, p. 17-20 for confirmation that the Aharonov/Bohm effect has indeed been firmly proven experimentally.
4. It is pointed out that today all potentials are well-known to be gravitational entities. However, this was not known in Whittaker's time, and so he himself did not realize that he had actually produced an engineerable, testable unified theory of electromagnetics and gravitation.
5. T.E. Bearden, "Possible Whittaker Unification of Electromagnetics, General Relativity, and Quantum Mechanics: Part I: Background," Presented to *Ala. Acad. Sci. Annual Symp.*, Univ. Jacksonville, Mar. 1991.

6. For the theory of a pumped phase conjugate mirror, see David M. Pepper, "Nonlinear Optical Phase Conjugation," *Opt. Eng.*, 21(2), Mar./Apr. 1982, p. 156-183; Amnon Yariv, *Optical Electronics*, 3rd Edn., Holt, Rinehart, and Winston, New York, 1985. In a normal triode tube, the amplified plate signal is 180 degrees out of phase *spatially* with the grid input, but in-phase with it in respect to *rate of flow through time*. In a PPCM, the amplified phase conjugate replica wave is in phase spatially with the signal wave, but 180 degrees out of phase with it in respect to its rate of flow through time. It is pointed out that a PCM with a gain of unity produces a coupled EM wave/antiwave pair whose energy is additive in 3-space but subtractive in the first derivative of the fourth dimension, time. Hence it is no longer an electromagnetic wave as such, but an oscillatory wave of stress upon the local rate of flow of time. Hence it is a powerful *electrogravitational wave*, whose EM nature is hidden in the guise of a scalar EM potential. It is also a wave of variation in the local gauge, and of variation in the local ST curvature.
7. See T.E. Bearden, *The Phase Conjugate Vacuum Triode*, Apr. 23, 1987, privately published. An earlier pencil draft was initially produced.
8. Sweet has continued to extend his theoretical treatment. A formal paper providing the complete mathematical theory of the vacuum triode has been drafted, is in final review, and will be submitted to a leading journal by mid-1991.
9. See Chapter 25: Outlook, "Possibility of Vacuum Engineering," T.D. Lee, *Particle Physics and Introduction to Field Theory*, Harwood, New York, 1981, pp. 824-828.
10. In 1977 Ilya Prigogine received the Nobel Prize for extending thermodynamics; in particular, for the theory of dissipative structures in nonequilibrium thermodynamics. In Prigogine systems, negentropy is known to be possible.
11. Robert G. Sachs, *The Physics of Time Reversal*, Univ. Chi. Press., Chicago, 1987.
12. Note that this moves the entire notion of the charge of a fundamental particle to a deeper and more extended level. Now the charge may be *discretized*, but it is not quantized in the hard conventional sense. Further, the internal Whittaker structure of the massless VPF photon exchange of vacuum and mass, which, quantum mechanically, is what the electrical charge of the particle is in the first place, is deterministically structured. Note that this violates the present assumption that all like charged particles are identical; now two electrons may have either the same or different magnitudes of charge, and even when the magnitudes are the same, their internal charge structures (Whittaker structures) and VPF exchange with the vacuum may differ. Also note that this resolves the severe QM problem of missing chaos (hidden order) in quantum change. The reason for the problem was the use of Gibbs statistics with its assumption of random variable change, which a priori excluded hidden order (and hence chaos) from QM. That was only a special case, albeit an important one. There are now three QM cases: (1) the conventional case, where there is no hidden order; (2) the case where there is some hidden order, and the statistics is chaotic, not random; and (3) the case where the QM change is deterministic, with essentially total hidden order. Note that the Whittaker

methodology allows one to directly engineer cases (2) and (3), including the Schroedinger equation itself.

13. The present second law of thermodynamics is written only for time-forward entities, and need not apply for the time-reversed case. Merely viewing the energy-dissipating forward time case in reverse allows an appreciation of the time-reversed case. In other words, the second law of thermodynamics is incomplete as presently stated. The complete law has a corollary to cover the increase in order as the time-reversal of the system increases. Thus the complete law consists of two parts: (1) the entropic, time-forward case, and (2) the negentropic time-reversed case. Since the re-ordering can be amplified at will by a PPCM process, the correct distinction between the two subsets of the complete law is important, and applies to real systems.
14. A.D. Sakharov, *Theor. Math. Phys.*, Vol. 23, 1975, p. 435.
15. T. E. Bearden, *Gravitobiology: A New Biophysics*, Tesla Book Co., 604 Date Ave., Chula Vista, CA 91912, 1991.
16. C.f. Charles W. Misner, Kip S. Thorne, and John Archibald Wheeler, *Gravitation*, W.H. Freeman and Co., San Francisco, 1973, p. 1191.
17. E.g., see Richard Kidd et al, "Evolution of the Modern Photon," *Am. J. Phys.*, 57(1), Jan. 1989, pp. 27-35. See also R. Chen, "Cancellation of Internal Forces," *Am. J. Phys.* 49(4), Apr. 1981, p. 372.
18. A nonlinear material may simply emit a photon, or it may act as a phase conjugate mirror (PCM) and emit a phase conjugate replica of the absorbed photon. When the material emits a normal photon, it measurably recoils. When it emits a time-reversed photon, it does not recoil, as already experimentally established in nonlinear phase conjugate optics. The solution to the mystery is this: When emitting a normal photon, the material does not act as a PCM. In that case the matching antiphoton which split from the interacting graviton (the graviton that yielded the external photon) interacts with the nucleus, producing a recoil action with a gain of one. Thus Newtonian third-law recoil of the nucleus occurs. On the other hand, when the material acts as a PCM, it also emits the antiphoton *outside* the atom to "backtrack" the absorbed "signal wave" photon. In that case there is no Newtonian recoil of the nucleus, because the *agent* for causing recoil did not interact with the nucleus to produce it.
19. Richard E. Prange and Peter Strance, "The Semiconducting Vacuum," *Am. J. Phys.* 52(1), Jan. 1984, p. 19-21. Also, under nonlinear conditions, a particle can absorb more energy than is in the light incident on it, absorbing the energy from the vacuum VPF. C.f. Craig F. Bohren, "How Can a Particle Absorb More Than the Light Incident on It?" *Am. J. Phys.* 51(4), Apr. 1983, p. 323-327.
20. C.f. Pepper, *ibid.* and Yariv, *ibid.* For a specific example, see Mary J. Miller et al, *Appl. Phys. Lett.* 41(8), Oct. 15, 1982, p. 689-691.

21. Again, for the theory of the PPCM, see Pepper, *ibid.* and Yariv, *ibid.*
22. E.g., see T.E. Bearden, *Gravitobiology: A New Biophysics*, Tesla Book Co., Chula Vista, CA, 1991, p. 33-36.
23. Bearden, *AIDS: Biological Warfare*, Tesla Book Co., 1988; *Gravitobiology: A New Biophysics*, Tesla Book Co., 1991; *Analysis of Scalar Electromagnetics*, Tesla Book Co., 1990.
24. C.f. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions*, [in Russian], Novosibirsk, 1981; Vlail P. Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76; N.D. Devyatkov, Ed., *Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine*, [in Russian], IRE Akad. Nauk. SSSR, Moscow, 1985.
25. C.f. Antoine Priore, "Method of Producing Radiations for Penetrating Living Cells," U.S. Patent No. 3,280,816; Jean-Michel Graille, *Le Dossier Priore*, De Noel, Paris, 1984 [in French]; Christopher Bird, "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," Appx. I to Bearden, *AIDS: Biological Warfare*, 1988.
26. C.f. Fritz Albert Popp, "Photon Storage in Biological Systems," in Fritz Albert Popp et al, Eds., *Electromagnetic Bio-Information: Proceedings of the Symposium*, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979, p. 123-149; also *Biophotonen. Ein neuer weg zur Losung des Krebsproblems*, Verlag fur Medizin, Heidelberg, 1976 [in German].





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## The New Tesla Electromagnetics and the Secrets of Electrical Free Energy

By T.E. Bearden

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## **COMMENTS ON THE NEW TESLA ELECTROMAGNETICS**

### **Part I: Discrepancies in Present EM Theory**

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There are at least twenty-two major discrepancies presently existing in conventional electromagnetics theory. This paper presents a summary of those flaws, and is a further commentary on my discussion of scalar longitudinal Tesla waves in a previous paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1981 and 1982.

I particularly wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. One of the two is an experimental genius who can produce items on the bench that do not work by orthodox theory. The second is a master of materials science and electromagnetics theory. I thank them both for their exceptional contributions and stimuli regarding potential shortcomings in present electromagnetics theory, and their forbearance with the many discussions we have held on this and related subjects.

It goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

(1) In present electromagnetics theory, charge and charged mass are falsely made identical. Actually, on a charged particle, the "charge" is the flux of virtual particles on the "bare particle" of observable mass. The charged particle is thus a "system" of true massless charge coupled to a bare chargeless mass. The observable "mass" is static, three-dimensional, and totally spatial. "Charge" is dynamic, four-dimensional or more, virtual and spatiotemporal. Further, the charge and observable mass can be decoupled, contrary to present theory. Decoupled charge -- that is, the absence of mass -- is simply what we presently refer to as "vacuum." Vacuum, spacetime, and massless charge are all identical. Rigorously, we should utilize any of these three as an "ether," as suggested for vacuum by Einstein himself (see

Max Born, Einstein's Theory of Relativity, Revised Edition, Dover Publications, New York, 1965, p. 224). And all three of them are identically anenergy -- not energy, but more fundamental components of energy.

(2) Electrostatic potential is regarded as a purely 3-dimensional spatial stress. Instead, it is the intensity of a many-dimensional (at least four-dimensional) virtual flux and a stress on all four dimensions of spacetime. This is easily seen, once one recognizes that spacetime is identically massless charge. (It is not "filled" with charge; rather, it is charge!) Just as, in a gas under pressure, the accumulation of additional gas further stresses the gas, the accumulation of charge (spacetime) stresses charge (spacetime). Further, if freed from its attachment to mass, charge can flow exclusively in time, exclusively in space, or in any combination of the two. Tesla waves -- which are scalar waves in pure massless charge flux itself -- thus can exhibit extraordinary characteristics that ordinary vector waves do not possess. And Tesla waves have extra dimensional degrees of freedom in which to move, as compared to vector waves. Indeed, one way to visualize a Tesla scalar wave is to regard it as a pure oscillation of time itself.

(3) Voltage and potential are often confused in the electrostatic case, or at least thought of as "composed of the same thing." For that reason, voltage is regarded as "potential drop". This also is not true. Rigorously, the potential is the intensity of the virtual particle flux at a single point -- whether or not there is any mass at the point -- and both the pressure and the point itself are spatiotemporal (4-dimensional), not spatial (3-dimensional) as presently assumed. Voltage represents the spatial intersection of the difference in the potential between two separated spatial points, and always implies at least a miniscule flow of mass current (that is what makes it spatial!). "Voltage" is spatial and depends upon the presence of observable mass flow, while scalar electrostatic potential is spatiotemporal and depends upon the absence of observable mass flow. The two are not even of the same dimensionality.

(4) The charge of vacuum spacetime is assumed to be zero, when in fact it is a very high value. Vacuum has no mass, but it has great massless charge and virtual particle charge flux. For proof that a charged vacuum is the seat of something in motion, see G.M. Graham and D.G. Lahoz, "Observation of static electromagnetic angular momentum in vacuo," Nature, Vol. 285, 15 May 1980, pp. 154-155. In fact, vacuum IS charge, identically, and it is also "spacetime" and at least four-dimensional.

(5) Contrary to its present usage, zero is dimensional and relative in its context. A three-dimensional spatial hole, for example, exists in time. If we model time as a dimension, then the spatial hole has one dimension in 4-space. So a spatial absence is a spatiotemporal presence. In the vacuum 4-space, a spatial nothing is still a something. The "virtual" concept and the mathematical concept of a derivative are simply two present ways of unconsciously addressing this fundamental problem of the dimensional relativity of zero.

(6) The concepts of "space" and "time" imply that spacetime (vacuum) has been separated into two parts. We can only think of a space as "continuing to exist in time " To separate vacuum spacetime into two pieces, an operation is continually required. The operator that accomplishes this splitting operation is the photon interaction, the interaction of vector electromagnetic energy or waves with mass. I have already strongly pointed out this effect and presented a "raindrop model" of first-order physical change itself in my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 128-130.

(7) "Vector magnetic potential" is assumed to be always an aspect of (and connected to) the magnetic field. In fact it is a separate, fundamental field of nature and it can be entirely disconnected from the magnetic field. See Richard P. Feynman et al, The Feynman Lectures on Physics, Addison-Wesley Publishing Co., New York, 1964, Vol. II, pp. 15-8 to 15-14. Curiously, this fact has been proven for years' yet it has been almost completely ignored in the West. The "Vx" operator, when applied to the A-field, makes B-field. If the Vx operator is not applied, the "freed" A-field possesses much-expanded characteristics from those presently allowed in the "bound" theory. Specifically, it becomes a scalar or "shadow vector" field; it is not a normal vector field. (note: for V read inverted capital Delta)

(8) The speed of light in vacuum is assumed to be a fundamental constant of nature. Instead it is a function of the intensity of the massless charge flux (that is, of the magnitude of the electrostatic potential) of the vacuum in which it moves. (Indeed, since vacuum and massless charge are one and the same, one may say that the speed of light is a function of the intensity of the spatiotemporal vacuum!). The higher the flux intensity (charge) of the vacuum, the faster the speed of light in it. This is an observed fact and already shown by hardcore measurements. For example, distinct differences actually exist in the speed of light in vacuo, when measured on the surface of the earth as compared to measurements in space away from planetary masses. In a vacuum on the surface of the earth, light moves significantly faster. For a discussion and the statistics, see B. N. Belyaev, "On Random Fluctuations of the Velocity of Light in Vacuum," Soviet Physics

Journal, No. 11, Nov. 1980, pp. 37-42 (original in Russian; translation by Plenum Publishing Corporation.) The Russians have used this knowledge for over two decades in their strategic psychotronics (energetics) program; yet hardly a single U.S. scientist is aware of the measured variation of  $c$  in vacuo. In fact, most Western scientists simply cannot believe it when it is pointed out to them!

(9) Energy is considered fundamental and equivalent to work. In fact, energy arises from vector processes, and it can be disassembled into more fundamental (anenergy) scalar components, since the vectors can. These scalar components individually can be moved to a distant location without expending work, since one is not moving force vectors. There the scalar components can be joined and reassembled into vectors to provide "free energy" appearing at a distance, with no loss in between the initial and distant points. For proof that a vector field can be replaced by (and considered to be composed of) two scalar fields, see E. T. Whittaker, Proceedings of the London Mathematical Society, Volume 1, 1903, p. 367. By extension, any vector wave can be replaced by two coupled scalar waves.

(10) The classical Poynting vector predicts no longitudinal wave of energy from a time-varying, electrically charged source, In fact, an exact solution of the problem does allow this longitudinal wave. See T. D. Keech and J. F. Corum, "A New Derivation for the Field of a Time-Varying Charge in Einstein's Theory," International Journal of Theoretical Physics, Vol. 20, No. 1, 1981, pp. 63-68 for the proof.

(11) The present concepts of vector and scalar are severely limited, and do not permit the explicit consideration of the internal, finer-grained structures of a vector or a scalar. That is, a fundamental problem exists with the basic assumptions in the vector mathematics itself. The "space" of a vector field, for example, does not have inter-nested sublevels (subspaces) containing finer "shadow vectors" or "virtual vectors," Yet particle physics has already discovered that electrical reality is built that way. Thus one should actually use a "hypernumber" theory after the manner of Charles Musés. A scalar is filled with (and composed of) nested levels of other "spaces" containing vectors, where these sum to "zero" in the ordinary observable frame without an observable vector resultant. In Musés' mathematics, for example, zero has real roots. Real physical devices can be -- and have been -constructed in accordance with Muses' theory. For an introduction to Musés' profound hypernumbers approach, see Charles Musés' foreword to Jerome Rothstein, Communication Organization and Science, The Falcon's Wing Press, Indian Hills, Colorado, 1958. See also Charles Musés, "Applied Hypernumbers: Computational Concepts," Applied Mathematics and

Computation, Vol. 3, 1976. See also Charles Musés, "Hypernumbers II," Applied Mathematics and Computation, January 1978.

(12) With the expanded Tesla electromagnetics, a new conservation of energy law is required. Let us recapitulate for a moment. The oldest law called for the conservation of mass. The present law calls for the conservation of "mass and energy", but not each separately. If mass is regarded as simply another aspect of energy, then the present law calls for the conservation of energy. However, this assumes that energy is a basic, fundamental concept. Since the energy concept is tied to work and the movement of vector forces, it implicitly assumes "vector movement" to be a "most fundamental" and irreducible concept. But as we pointed out, Whittaker showed that vectors can always be further broken down into more fundamental coupled scalar components. Further, Tesla discovered that these "coupled components" of "energy" can be individually separated, transmitted, processed, rejoined, etc. This directly implies that energy per se need not be conserved. The new law therefore calls for the conservation of anenergy, the components of energy. These components may be coupled into energy, and the energy may be further compacted into mass. It is the sum total of the (anenergy) components -- coupled and uncoupled -- that is conserved, not the matter or the energy per se. Further, this conservation of anenergy is not spatial; rather, it is spatiotemporal in a spacetime of at least four or more dimensions.

(13) Relativity is presently regarded as a theory or statement about fundamental physical reality. In fact, it is only a statement about FIRST ORDER reality -- the reality that emerges from the vector interaction of electromagnetic energy with matter. When we break down the vectors into scalars (shadow vectors or hypervectors), we immediately enter a vastly different, far more fundamental reality. In this reality superluminal velocity, multiple universes, travel back and forth in time, higher dimensions, variation of all "fundamental constants" of nature, materialization and dematerialization, and violation of the "conservation of energy" are all involved. Even our present Aristotlean logic -- fitted to the photon interaction by vector light as the fundamental observation mechanism -- is incapable of describing or modeling this more fundamental reality. Using scalar waves and scalar interactions as much subtler, far less limited observation/detection mechanisms, we must have a new "superrelativity" to describe the expanded electromagnetic reality uncovered by Nikola Tesla.

(14) "Charge" is assumed to be quantized, in addition to always occurring with -- and locked to -- mass. Indeed, charge is not necessarily quantized just as it is not necessarily locked to mass.

Ehrenhaft discovered and reported fractional charges for years, in the 30's and 40's, and was ignored. See P.A.11. Dirac, "Development of the Physicist's Conception of Nature," Symposium on the Development of the Physicist's Conception of Nature, ed. Jagdish Merha, D. Reidel, Boston, 1973, pp. 12-14 for a presentation of some of Ehrenhaft's results. Within the last few years Stanford University researchers also have positively demonstrated the existence of "fractional charge." For a layman's description of their work, see "A Spector Haunting Physics," Science News, Vol. 119, January 31, 1981, pp. 68-69. Indeed, Dirac in his referenced article points out that Millikan himself -- in his original oil drop experiments -- reported one measurement of fractional charge, but discounted it as probably due to error.

(15) Presently, things are always regarded as traveling through normal space. Thus we use or model only the most elementary type of motion -- that performed by vector electromagnetic energy. We do not allow for things to "travel inside the vector flow itself." Yet, actually, there is a second, more subtle flow inside the first, and a third, even more subtle flow inside the second, and so on. We may operate inside, onto, into, and out of energy itself -- and any anenergy component of energy. There are hypervectors and hyperscalars unlimited, within the ordinary vectors and scalars we already know. Further, these "internal flows" can be engineered and utilized, allowing physical reality itself to be directly engineered, almost without limits.

(16) We always assume everything exists in time. Actually, nothing presently measured exists in time, because the physical detection/measurement process of our present instruments destroys time, ripping it off and tossing it away -- and thereby "collapsing the wave function." Present scientific methodology thus is seriously flawed. It does not yield fundamental (spacetime) truth, but only a partial (spatial) truth. This in turn leads to great scientific oversights. For example, mass does not exist in time, but mass x time (masstime) does. A fundamental constant does not exist in time, but the "constant x time" does. Energy does not exist in time, but energy x time (action) does. Even space itself does not exist in time -- spacetime does. We are almost always one dimension short in every observable we model. Yet we persist in thinking spatially, and we have developed instruments that detect and measure spatially only. Such instruments can never measure and detect the phenomenology of the nested substrata of time. By using scalar technology, however, less limited instruments can indeed be constructed -and they have been. With such new instruments, the phenomenology of the new electromagnetics can be explored and an engineering technology developed.



(17) We do not recognize the connection between nested levels of virtual state (particle physics) and orthogonally rotated frames (hyperspaces). Actually the two are identical, as I showed in the appendix to my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 233-235. A virtual particle in the laboratory frame is an observable particle in a hyperspatial frame rotated more than one orthogonal turn away. This of course implies that the hyperspatial velocity of all virtual particles is greater than the speed of light. The particle physicist is already deeply involved in hyperspaces and hyperspatial charge fluxes without realizing it. In other words, he is using tachyons (particles that move faster than light) without realizing it.

(18) Presently quantum mechanics rigorously states that time is not an observable, and therefore it cannot be measured or detected. According to this assumption, one must always infer time from spatial measurements, because all detections and measurements are spatial. With this assumption, our scientists prejudice themselves against even looking for finer, subquantal measurement methodologies and instrumentation. Actually this present limitation is a result of the type of electromagnetics we presently know, where all instruments (the "measurers") have been interacted with by vector electromagnetic energy (light). Every mass that has temperature (and all masses do!) is continually absorbing and emitting photons, and in the process they are continually connecting to time and disconnecting from time. If time is continually being carried away from the detector itself by its emitted photons, then the detector cannot hold and "detect" that which it has just lost. With Tesla electromagnetics, however, the fundamental limitation of our present instruments need not apply. With finer instruments, we can show there are an infinite number of levels to "time", and it is only the "quantum level time" which is continually being lost by vector light (photon) interaction. By using subquantal scalar waves, instruments can move to deeper levels of time -- in which case the upper levels of time ARE measureable and detectable, in contradistinction to the present assumptions.

(19) In the present physics, time is modeled as, and considered to be, a continuous dimension such as length. This is only a gross approximation. Indeed, time is not like continuous "dimension," but more like a series of "stitches," each of which is individually made and then ripped out before the next stitch appears. "Vector light" photons interact one at a time, and it is this interaction with mass that creates quantum change itself. The absorption of a photon -- which is energy x time -- by a spatial mass converts it to masstime: the time was added by the photon. The emission of a photon tears away the time, leaving behind again a spatial mass. It is not accidental, then, that time flows at

the speed of light, for it is light which contains and carries time. It is also not accidental that the photon IS the individual quantum. Since all our instruments presently are continually absorbing and emitting photons, they are all "quantized," and they accordingly "quantize" their detections. This is true because all detection is totally internal to the detector, and the instruments detect only their own internal changes. Since these detections are on a totally granular quantized background, the detections themselves are quantized. The Minkowski model is fundamentally erroneous in its modeling of time, and for that reason relativity and quantum mechanics continue to resist all attempts to successfully combine them, quantum field theory notwithstanding.

(20) Presently, gravitational field and electrical field are considered mutually exclusive. Actually this is also untrue. In 1974, for example, Santilli proved that electrical field and gravitational field indeed are not mutually exclusive. In that case, one is left with two possibilities: (a) they are totally the same thing, or (b) they are partially the same thing. For the proof, see R. M. Santilli, "Partons and Gravitation: Some Puzzling Questions," Annals of Physics, Vol. 83, No. 1, March 1974. With the new Tesla electromagnetics, pure scalar waves in time itself can be produced electrically, and electrostatics (when the charge has been separated from the mass) becomes a "magic" tool capable of directly affecting and altering anything that exists in time--including gravitational field. Antigravity and the inertial drive are immediate and direct consequences of the new electromagnetics.

(21) Presently, mind is considered metaphysical, not a part of physics, and not affected by physical means. Literally, the prevailing belief of Western scientists is that man is a mechanical robot -- even though relativity depends entirely upon the idea of the "observer." Western science today thus has essentially become dogmatic, and in this respect borders on a religion. Since this "religion," so to speak, is now fairly well entrenched in its power in the state, Western science is turning itself into an oligarchy. But mind occupies time, and when we measure and affect time we can directly measure and affect mind itself. In the new electromagnetics, then, man regains his dignity and his humanity by restoring the reality of mind and thought to science. In my book, The Excalibur Briefing, I have already pointed out the reality of mind and a simplified way in which it can be modeled to the first order. With scalar wave instruments, the reality of mind and thought can be measured in the laboratory, and parapsychology becomes a working, engineering, scientific discipline.

(22) Multiple-valued basic dimensional functions are either not permitted or severely discouraged in the present theory. For one thing, integrals of multiple valued derivative functions have the annoying

habit of "blowing up" and yielding erroneous answers, or none at all. And we certainly do not allow multiple types of time! This leads to the absurdity of the present interpretation of relativity which permits only a single observer (and a single observation) at a time. So if one believes as "absurd" a thing as the fact that more than one person can observe an apple at the same time, the present physics fails. However, the acceptance of such a simple proposition as multiple simultaneous observation leads to a physics so bizarre and incredible that most Western physicists have been unable to tolerate it, much less examine its consequences. In the physics that emerges from multiple simultaneous observation, all possibilities are real and physical. There are an infinite number of worlds, orthogonal to one another, and each world is continually splitting into additional such "worlds" at a stupendous rate. Nonetheless, this physics was worked out by Everett for his doctoral thesis in 1956, and the thesis was published in 1957. (See Hugh Everett, III, The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition, with papers by J. A. Wheeler, B.S. DeWitt, L. N. Cooper and D. Van Vechten, and N. Graham; eds. Bryce S. Dewitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.) Even though it is bizarre, Everett's physics is entirely consistent with all the present experimental basis of physics. The present electromagnetic theory is constructed for only a single "world" or universe -- or "level." The expanded theory, on the other hand, contains multiply nested levels of virtual state charge -- and these levels are identically the same as orthogonal universes, or "hyperframes." Multiple kinds -- and values -- of time also exist. The new concept differs from Everett's, however, in that the orthogonal universes intercommunicate in the virtual state. That is, an observable in one universe is always a virtual quantity in each of the other universes. Thus one can have multi-level "continuities" and "discontinuities" simultaneously, without logical conflict. It is precisely these levels of charge -- these levels of scalar vacuum -- that lace together the discontinuous quanta generated by the interaction of vector light with mass.

However, to understand the new electromagnetic reality, one requires a new, expanded logic which contains the old Aristotlean logic as a subset. I have already pointed out the new logic in my paper, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," 1979, available from the National Technical Information Center, AD-A071032.

Even as logic is extended, quantum mechanics, quantum electrodynamics, and relativity are drastically changed by the Tesla electromagnetics, as I pointed out in my paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1580

Magnolia, Millbrae, California, 94030, 1980.

The present electromagnetics is just a special case of a much more fundamental electromagnetics discovered by Nikola Tesla, just as Newtonian physics is a special case of relativistic physics. But in the electromagnetics case, the differences between the old and the new are far more drastic and profound.

### ADDITIONAL REFERENCES

1, Boren, Dr. Lawrence Milton, "Discovery of the Fundamental Magnetic Charge (Arising from the new Conservation of Magnetic Energy)," 1981/82 (private communication). Dr. Boren has a cogent argument that the positron is the fundamental unit of magnetic charge. His theory thus assigns fundamentally different natures to positive charge and negative charge. In support of Dr. Boren, one should point out that the "positive" end of circuits can simply be "less negative" than the "negative" end. In other words, the circuit works simply from higher accumulation of negative charges (the "negative" end) to a lesser accumulation of negative charges (the "positive" end). Nowhere need there be positive charges (protons, positrons, etc.) to make the circuit work. Dr. Boren's theory, though dramatic at first encounter, nonetheless bears close and meticulous examination -- particularly since he has been able to gather experimental data which support his theory and disagree with present theory.

2. Eagle, Albert, "An Alternative Explanation of Relativity Phenomena," *Philosophical Magazine and Journal of Science*, No. 191, December 1939, pp. 694-701.

3. Ehrenhaft, Felix and Wasser, Emanuel, "Determination of the Size and Weight of Single Submicroscopic Spheres of the Order of Magnitude  $r = 4 \times 10^{-5}$  cm. to  $5 \times 10^{-6}$  cm., as well as the Production of Real Images of Submicroscopic Particles by means of Ultraviolet Light," *Phil. Mag. and Jour. of Sci.*, Vol. II (Seventh Series), No. 7, July 1926, pp. 30-51.

4. Ehrenhaft, Felix and Wasser, Emanuel, "New Evidence of the Existence of Charges smaller than the Electron - (a) The Micromagnet; (b) The Law of Resistance; (c) The Computation of Errors of the Method," *Phil. Mag. and Jour. of Sci.*, Vol. V (Seventh Series), No. 28, February 1928, pp. 225-241.

5. See also Ehrenhaft's last paper dealing with the electronic charge, in *Philosophy of Science*, Vol. 8, 1941, p. 403.

6. McGregor, Donald Rait, The Inertia of the Vacuum: A New Foundation for Theoretical Physics, Exposition Press, Smithtown, NY, First Edition, 1981, pp. 15-20.
7. Ignat'ev, Yu. G. and Balakin, A. B., "Nonlinear Gravitational Waves in Plasma," Soviet Physics Journal, Vol. 24, No. 7, July 1981, (U.S. Translation, Consultants Bureau, NY, January 1982), pp. 593-597.
8. Yater, Joseph C., "Relation of the second law of thermodynamics to the power conversion of energy fluctuations," Phys. Review A, Vol. 20, no. 4, October 1979, pp. 1614-1618.
9. DeSantis, Romano M. et al, "On the Analysis of Feedback Systems With a Multipower Open Loop Chain," October 1973, available through the Defense Technical Information Center (AD 773188),
10. Graneau, Peter, "Electromagnetic jet-propulsion in the direction of current flow," Nature, Vol. 295, 28 January 1982, pp. 311-312.
11. "Gravity and acceleration aren't always equivalent," New Scientist, 17 September 1981, p. 723.
12. Gonyaev, V. V , "Experimental Determination of the Free-Fall Acceleration of a Relativistic Charged Particle. II. A Cylindrical Solenoid in a Time-Independent Field of Inertial Forces," Izvestiya VUZ, Fizika, No. 7, 1979, pp. 28-32. English Translation: Soviet Physics Journal, No. 7, 1979, pp. 829-833. If one understands the new, expanded electromagnetics, this Soviet paper indicates a means of generating antigravity and pure inertial fields.
13. R. Schaffranke, "The Development of Post-Relativistic Concepts in Physics and Advanced Technology Abroad," Energy Unlimited, No. 12, Winter 1981, pp. 15-20.
14. F. K. Preikschat, A Critical Look at the Theory of Relativity, Library of Congress Catalogue No. 77-670044. Extensive compilation of measurements of the speed of light. Clearly shows the speed of light is not constant but changes, sometimes even daily.

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## COMMENTS ON THE NEW TESLA ELECTROMAGNETICS

### Part II: The Secret of Electrical Free Energy

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Again I wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. I thank them both for their exceptional contributions and stimuli, and their forbearance with the many discussions we have held on this and related subjects.

Also, it goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

Present electromagnetic theory is only a special case of the much more fundamental electromagnetism discovered by Nikola Tesla at the turn of the century.

Pure vacuum is pure charge flux, without mass. The vacuum has a very high electrical potential -- something on the order of 200 million volts, with respect to a hypothetical zero charge.

Thus in an ordinary electrical circuit, each point of the "ground" -- which has the same potential as the vacuum -- actually has a non-zero absolute potential. This circuit ground has a value of zero only with respect to something else which has the same absolute electrical potential.

Voltage, which is always associated with a flow of electrical "mass" current (even if only a miniscule flow), is, by definition, a difference dropped in potential when a charge mass moves between two spatially separated points. What we have termed "electrical current" only flows where there is a suitable conducting medium between things which have a difference in absolute potential. Furthermore, between any two points in any material, there is considered to exist a finite resistance -- if we apply a voltage and have a mass current flowing between the two points! The simple statement that  $V = IR$  irrevocably ties together voltage drop, mass current, and resistance between two points. Rigorously, to have one of the three is to have them all. To lose one is to lose all three. Immediately we see a major error in present theory: One can have a "difference in scalar potential" between two points without having a "voltage drop" between them. Specifically, if no mass current flows between them, no resistance exists between them, and no voltage drop exists between them.

In the same fashion, one can have a "scalar wave" through the

In the same fashion, one can have a "scalar wave" through the vacuum without a voltage wave. In that case, the wave has no E-field and no H-field. The only reason one has an E-field

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around a statically charged object is because the charged electrons accumulated on the object are actually in violent motion. It is this motion of the charged masses that produces E-field -- as well as H-field whenever that entire E-field ensemble moves through laboratory space.

Now let us reason together in the "approximate" manner utilized in present electromagnetic theory. For example, let us examine a bird sitting on a high tension line.

The bird sits on the high tension line without a flow of mass electricity, because there is no significant difference in potential drop between the bird and the line. Specifically, between the bird's two feet -- each in contact with a different portion of the line -- there exists no potential difference. This is true even though, with respect to the vacuum, each foot is at a potential that would be "100,000 volts higher," were a mass current flowing. And it is true even though the absolute potential of each foot may be some 200.1 million "volts," were a mass current flowing.

Now an interesting thing happens to the bird when he flies through the air to light upon the high tension wire. As he flies toward the wire, he is flying through the massless electrostatic potential field of the wire, for that field extends an infinite distance away from the wire. The electrostatic potential field -- pure  $\phi$ -field -- is actually the spatio-temporal intensity of the massless charge at a point. In other words, as the bird flies to the wire, he flies into an increasing "massless charge" potential, building up to 100,000 "volts" higher than the earth. However, very little (if any) "mass flow" potential difference is experienced upon his body in approaching the wire, and so essentially no "charged mass currents" are induced in his body. Thus the little flier safely navigates into the teeth of a very high electrostatic potential, lights upon the wire, and is not "fried" in the process. When he lights on the wire, his body has reached the electrostatic potential that each foot's contact point has. Again, there is no mass current flow. But his body is immersed in an increased flux of massless charge -- which is what the electrostatic potential represents. And each "virtual particle" flow in that charge potential represents a "massless (scalar)" electrical current.

The point is, one can have any amount of massless charge flow -- "scalar" current -- without any mechanical work being done in the system. All electrical work in a circuit is done against the physical mass of the charged masses that flow. Rigorously, force is defined as the time rate of change of momentum. Even in the relativistic case where  $F = ma + v(dm/dt)$ , change of momentum requires mass movement. No mechanical work, and hence no energy, is expended by massless charge flow.

That is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work

that is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work on our systems, and expends none of its very high "potential energy." It is exactly the same as the bird which flew into an

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increasing scalar field as it approached the high tension wire -- no work was done upon the bird by the increasing scalar flux currents encountered by its body.

By existing "in the vacuum," so to speak, we (the whole earth) are as birds sitting on a high tension line! Until we create significant difference in potential, via our present electromagnetic circuits, no current can flow -- anywhere. Even if we produce potential differences, we must have a conductor and charged masses to flow, if we wish to produce mechanical work. Presently our electromagnetic theory allows us to create a difference in potential within different parts of a circuit, but only by moving and shifting charged mass. We therefore have to do work on this electrical mass in moving it around, and we only get back the work we have put into the circuit. In other words, presently all we do is "pump" electrical mass.

Now notice what would happen to the bird on the line if we substantially "pulsed" the potential on the line. Suppose we "pulsed" it such that the bird's physical system -- considered as a circuit containing a capacitance, a resistance, an inductance, and many free electrons -- became resonant to the pulsing frequency. In that case the "bird system" would resonate, and a great deal of electrical mass would surge back and forth in the body of the bird. In the bird's body, voltage would exist, charged mass current would flow, work would be done, and the bird would be electrocuted.

Also, note that, without mass movement, electromagnetic vector fields are not produced (and a portion of the difficulty lies with the actual vector mathematics itself). Scalar (nonvector) waves continually penetrate "space" where there is no mass movement. This means there can exist a " $\Delta\phi$ " without a voltage or an E-field. The present theory does not allow this, because it always uses "q" (charge) to be charged mass. Briefly, without belaboring the point, let us just say that it is the mechanical spin of the individual charged particle -- such as the electron -- which "entangles" or "knits together" or "couples" independent scalar waves into vector waves. A vector wave is simply two coupled scalar waves. The entire force field concept -- such as the E-field and the B-field -- is operationally defined in terms of the force exhibited on a test particle, or test mass. Rigorously, an E-field does not exist as a force field in vacuum, but as two coupled scalar  $\phi$ -fields "tumbling about each other." When these two coupled, tumbling fields meet a spinning electron, e.g., the force emerges on the electron mass. In short, movement of a rotating mass changes  $\Delta\phi$  to "voltage", creating the V/I/R triad.

By "accumulating charged mass particles" -- such as electrons -- one certainly can increase the value of  $\phi$ , which represents the charge intensity or "scalar electrostatic potential." However, that is not the only way to increase it. Resonance and rotation of charged masses can also be appropriately employed to vary the vacuum charge potential  $\phi$ , under the proper circumstances.

or charged masses can also be appropriately employed to vary the vacuum charge potential  $\Phi$ , under the proper circumstances.

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By the correct application of rotary principles and Tesla electromagnetic theory, it is possible to oscillate -- and change -- the vacuum potential itself, in one part of an electrical system. Thus by correct procedures a part of a system can be electrically altered so that the absolute value of its "ground" (vacuum) potential differs significantly from the normal vacuum-ground potential of the remainder of the circuit. In other words, we shift the vacuum-ground potential of part of the circuit by oscillating the massless vacuum charge itself, and in so doing we gain a substantial, oscillatory electrical potential difference between that part of the circuit and the normal ground potential of the rest of the system. Then we connect the two parts of the system by means of a conductor containing a load in the middle.

In every conductor, a large number of "free electrons" are available. If we oscillate the actual vacuum charge itself, unlimited additional free electrons also become available from the Dirac sea, since partial "unstripping" of the negative energy wells (each containing an electron) occurs. This "unstripping" of the potential of the well is due to vacuum potential oscillation, which oscillates time as well as space. To a negative energy well (positive time), the oscillation of its "time stream" increases the well's negative potential during one half-cycle and decreases its potential for the other half-cycle. Thus during half the oscillatory cycle, negative energy electrons may be lifted from the Dirac sea if the oscillation is sufficiently intense.

Therefore we obtain an attendant voltage and flow of mass current through the load. This voltage and current, by the way, are essentially limitless, and are free for the asking, assuming the proper "vacuum oscillation" is initiated and maintained so that electrons are continually being lifted from the Dirac sea by the time oscillations, and fed into the circuit.

Standard electromagnetic theory assumes that the vacuum potential is zero. It does not recognize the existence of massless charge, separated from charged mass. Therefore, orthodox scientists have never looked for a way to engineer the vacuum, because they have not realized it is composed of pure massless charge. Electrical physics has almost hopelessly confused charge and charged mass, thereby eliminating scalar longitudinal electrostatic waves. Expressed in the bird/high tension line analogy, the present electromagnetic theory restricts us to walking along the high tension line, laboriously carrying small batteries and power units, unaware of the limitless, surging power beneath our very feet.

Electromagnetically, we have been rather like one of the five blind men who touched an elephant. We have only touched one small portion of the electromagnetism "elephant," yet we thought we had grasped the entire beast.

## OVERTURE TO A NEW AGE TECHNOLOGY

From an Update by Dr. Rolf Schaffranke

" ... as there has been a steady erosion in U. S. activity in the basic sciences, there has been an increase in the level of such activity in Western Europe and Japan. If that continues, we are in danger of losing our position of scientific leadership."

Val. L. Fitch, Prof. of Physics at  
Princeton University, in an interview with  
*U.S. News & World Report*, June 21, 1982.

### West Germany:

The prototype of the first motorcycle equipped with a "flux-motor" (the inventor's designation for a tachion field converter or gravity-field generator) of 2 KW output has completed a test run of approximately 20,000 km without repairs. Principle of operation: The T-converter is constantly recharging the electrical power battery of the vehicle, resulting in an operation which is noiseless, fuelless and pollution-free. After completion of all scheduled tests, a public demonstration to the press is planned within a few weeks from the time of this writing. (June 17, 1982) See photo, Pg. 19. A new factory for the production of gravity-energy-field converters in the town of Oldenburg is scheduled to produce individual home heating units. The design of automobile power plants based on the same principle is also in preparation. Reported efficiency factors of several hundred percent are anticipated.

### Japan:

Mazda continues research on the "magnetic Wankel engine" (45 HP) for electric automobiles, based on the principle of Kure Tekko. The gravity research of Prof. S. Seike is now sponsored by Hitachi, after millions of Japanese received updated information via popular science magazines. It is interesting to note that Saudi Arabia has decided to invest \$100 million in Hitachi stocks.

### France:

The "Kromrey" converter has completed tests at the Institute for Magneto-statics, University of Strasbourg. One prototype delivered 700 Watts at 600-1200 RPM, at a fairly uniform rate. However, France, as the No. 1 developer of nuclear energy in Europe, is still reluctant to concentrate her energies on a revolutionary new technology which could result in drastic curtailments of her well-developed nuclear industry and associated exports. See photos, Pg. 22.

### Denmark:

Dr. Jensen, physicist at the University of Copenhagen, reported test results of 300% efficiency with a specially designed, 5-coil transformer in connection

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with a tachion field converter based on the principle of the "N" machine. First reports were presented at the International Conference on Energy Technology in Hannover, Nov., 1980.

England / USA:

A "bullet train" based on the magnetic levitation system of British Prof. Eric Laithwaite is now under consideration for construction between Los Angeles and San Diego. Japan and West Germany are already operating high speed experimental trains, suspended magnetically to reduce friction, that may soon attain speeds of more than 200 miles per hour. The Laithwaite-Eastham method would use electromagnetic forcefields induced over an aluminum-topped concrete track. The project will probably be headed by a Japanese company as the prime contractor.

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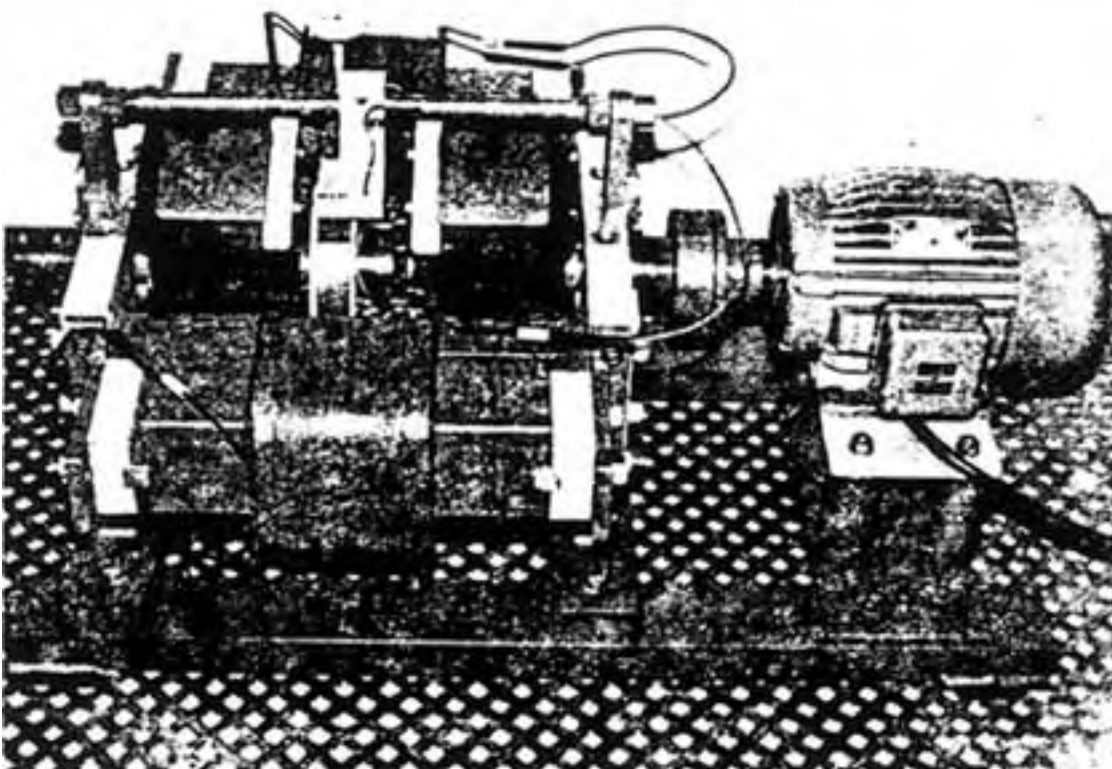
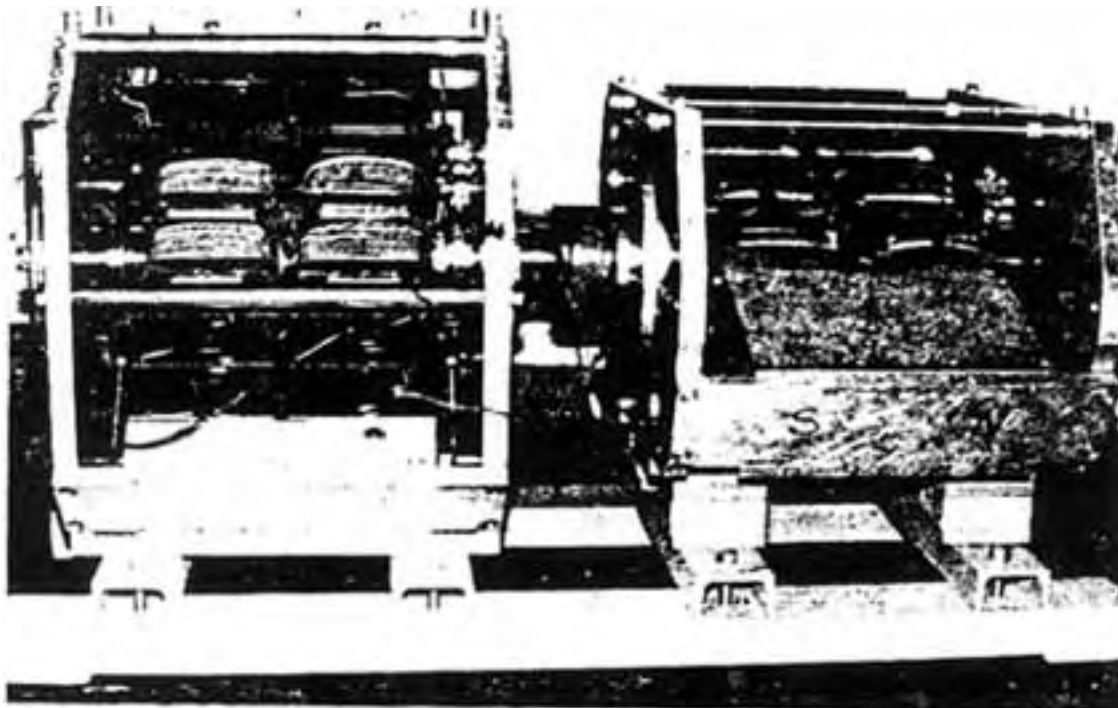
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West German gravity-field unit in operation

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Swiss-French gravity field converter system "Kromrey"

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## REVIEW AND OUTLOOK

### THE DEVELOPMENT OF POST-RELATIVISTIC CONCEPTS IN PHYSICS AND ADVANCED TECHNOLOGY ABROAD

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Member A.I.A.A.

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the author.)*

"Far more harm is done to the progress of science by  
skepticism than by gullibility". (Dr. Robert Wood, Director  
R & D, McDonnell-Douglas Astronautics Div., Cal.) NASA  
- Langley Research Center in Hampton, VA is named after  
Samuel Pierpont Langley (1834-1906), an American  
astronomer, engineer and architect.

Langley worked out the aerodynamic principles for  
manned flight. In principal, his calculations were correct;  
but the structural materials he used for wings and engines  
were ,insufficient. In December of 1903, the *New York  
Times* published an editorial complaining about his foolish  
dream and the associated waste of government money. The  
editorial predicted that: "man would not fly for a thousand  
years".

Only 9 days after the editorial was published, the Wright  
brothers made their first successful powered flight at Kitty  
Hawk. (Dec. 17, 1903). But, again, as late as 1905, the  
*Scientific American* suggested the happening was a hoax -  
two years after the event which changed history. Let's reflect  
for a moment on the fact that only in a single lifetime, man  
has journeyed from Kitty Hawk to the surface of the moon!

The analogy to the problem of alternative energies and  
their development is, of course, obvious. We try to educate  
the preaching orthodoxies. But orthodox solutions are no  
longer enough. Our system of education can only give from

the past. The present must operate on inspiration and intuition, or the future will be lost. The past no longer has enough of the answers for arising crises for which there are no precedents. To keep pace with the requirements of the future, we must begin to teach not only what to learn, but how to learn, how to analyze, how to search for the truth. Only then will be able to recognize discrepancies between experiment and dogma and to cope with problems which appear to be just beyond the corner. History has shown again and again that no single individual can rise above the species without being persecuted. The reasons for that are:

Some of the most powerful forces in homo sapiens have always been

Greed, Pride, Ego, Fear and, above all, the Desire to Control Others,

A brand new German book titled *Energy in Abundance*, which is evidently creating a considerable impact in the European community, challenges the contemporary high

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priests of science, the "Guardians of the Status Quo" and uncovers an almost incredible narrowmindedness and ignorance in science, politics and economics, "approaching the criminal" as the author puts it. The contemporary waste of genuine intellectual creativity is castigated as a cultural scandal approaching barbarism. The book stresses that a truly promising approach to the so-called energy crisis requires a fundamental and thorough re-evaluation of the theories, dogmas and axioms which form the basis of present day science and the foundation of our technology. As in the past, the formidable inertia of the establishment is not only based on inaccurate, incomplete and outdated information, but also on its reluctance to accept new ideas. The honest search for the truth first requires that we first demythologize generally accepted claims of so-called experts of the past. An excellent introduction to this problem is the article "Resistance by Scientists to Scientific Discovery" by Bernard Barber in *Science*, Vol. 134, pp. 596-602, of Sept. 1961, or the paper by Stephen C. Brush in *Science* of March, 1974, titled "Should the History of Science be Rated 'X'?", culminating with a statement of Huxley:

"Authorities", "disciples", and "schools" are the curse of science and do more to interfere with the work of the scientific spirit than all its enemies".

The former astronaut, Capt. Edgar D. Mitchell, one of our famous contemporaries, also stressed the need for an open mind!

"History has shown time and again that important scientific discoveries generally happen only when someone steps outside the limits of his traditional discipline and looks at something from a fresh point of view. Then what should have been obvious all along comes into focus".

Those of us who are familiar with the pioneering efforts of Dr. Hans Nieper of Hanover will appreciate this statement by an ex-astronaut.

One of the most important cornerstones of today's scientific dogmas dates back to 1905, more than 3/4 of a century ago. Lest we forget, television and radar, jet-planes and cyclotrons, moonrockets and close-up photos of the planets of our solar system were nothing but wild fantasies of science fiction then.

The speed of light was assumed to be constant and the maximum possible speed in the universe; vacuum was to be a total void. In reality, the speed of light as measured in the Michelson-Morley experiments was not at all the same in all directions. The "ether-drift" still amounted to the respectable velocity of about five miles per second, and similar results were obtained by D. C. Miller in a series of experiments extending over twenty-five years, from 1902 to 1926.

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"Even worse, the measurements showed such marked discrepancies with previous results as to occasion a distress call to the U. S. Coast & Geodetic Survey, whose surveyors repeatedly remeasured the length of the tube and found no error there," reported the *Popular Science Monthly* March 1934 issue. And it continued: "More recently, speed of light observations only emphasized the apparent erratic behavior of the light beam that the scientists were attempting to plot. On some days it seems to travel faster than others by as much as 12 miles a second. Its speed seems to vary with the season, and also in a mysterious shorter cycle lasting about 2 weeks. Finally, the scientists ended by taking an average of all the readings which has just been announced as 186,271 miles per second".

In his paper "A Critical Look At the Theory of Relativity", Library of Congress Cat. No. 77-670044, F. K. Preikschat compiled all known light velocity measurements during the past 300 years or so, from Olaf Roemer in 1676 to the Laser measurements conducted by the National Bureau of Standards (USA) in 1972.

Of the 27 experiments undertaken in this field, 18 of them after the turn of this century, it must be concluded that the velocity of light as measured within the reference system of our earth has changed as much as plus/minus 50 km/sec, during the past century. Preikschat plotted a curve of these deviations and suggests a possible relationship between sunspot activities and changes of the earth magnetic field during the time period in question.

The "universal constancy of light" appears, therefore, as somewhat shaky "empirical evidence" for our cornerstone in physics, especially since Einstein himself has gone on record as saying:

"If a single one of the conclusions drawn from it (relativity theory) proves to be wrong, it must be given up; to modify it without destroying the whole structure seems to be impossible".

Another modification concerns the definition for the term "vacuum" in physics, as documented by a paper in the *American Scientist*, March-April 1980, titled "Is The Vacuum Really Empty?" by Prof. Walter Greiner, University of Frankfurt, BRD, and Prof. Joseph H. Hamilton, Vanderbilt University, Nashville, Tenn.

The authors conclude that a neutral vacuum is by no means as "empty" as previously claimed in our textbooks, and suggests a new definition as follows:

"The vacuum is the lowest stable state that a region of space can have while being penetrated by certain fields".

Because of the tremendous time lag in our educational system, many research

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projects and their ensuing experimental data have been withheld from public scrutiny. The scientific community tends to have a vested interest in preserving the system it created and of which it is a part. It responds to new situations through the coloration of this attachment. A case in point are the carefully conducted experiments of T. T. Brown with charged bodies in a high vacuum, as described in my booklet *Ether Technology* (1977). These experiments suggest the actual presence of certain fields in vacuum, whether we call them gravitational field, tachion-field, ether-field, neutrino or Fermi-sea, etc. is of secondary importance at this moment. Although Brown spent, reportedly, more than \$200,000 of his own funds over several decades on such experiments, he was nevertheless unable to have the results published in the scientific media of America.

Things are even worse when it comes to experiments conducted abroad, which often tend to confirm disregarded experimental results on this continent, as we shall see shortly. To highlight the wide discrepancies between orthodox (and obsolete) dogmas and actual, physical realities pertaining to the true subatomic structures as we know them to be today, let us briefly review the structure of the matter:

A molecule is the smallest division of a substance. Further division would cause it to cease being a substance. The smallest of true molecules can be illustrated when we use the globe of the earth for our standard. If a single drop of water were magnified until it was as big as the earth, each molecule would be about the size of a TENNIS BALL.

On the next step down, an atom is the unit which makes up the nature of the molecule, consisting of the nucleus and the surrounding electrons to render the atom "stable". An atom of hydrogen contains one proton and one electron to balance or neutralize the proton. Matter then is divisible into electrons and protons. But - and here comes the rub: Between electrons and protons are spaces so vast, in comparison with the masses of each, that, if the proton in the carbon atom were the size of a golf ball hanging from the ceiling of the great hall at Pennsylvania Station in New York, its electrons would be represented by six small wasps winging in a little knot against the four walls of the gigantic structure of the building! In effect, one could claim there is little final solidity of substance to anything: The universe consists of "emptiness", charged with electrical energy! If we translate the above to the measurements and terminology of the physicist and "magnify" the atom mathematically, with all its distances and dimensions kept in proportion so that the orbit of the electron would have a diameter equal to that of the earth about the sun, approximately 184 million miles, the diameter of the electron itself would only be 2,000 miles, and the diameter of the nucleus, where

electron itself would only be 2,000 miles, and the diameter of the nucleus, where

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mass and weight of the atom are truly concentrated, can be taken as 2 miles only. We thus obtain a picture of a central mass with a diameter of 2 miles (nucleus), another object with a diameter of 2,000 miles (the electron, in the case of the hydrogen atom) at a distance of 92 million miles away from it, orbiting the nucleus. Evidently, there is plenty of room inside this system. And "room" is not a vacuum, it is not nothingness, but space itself, spatial energy, a field which can be identified with the ether of the past - and of the future. Nobel prize winner, Max Planck, during a lecture in Florence, Italy, once made a truly remarkable statement which describes the problem facing the physicist today:

"As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell you as the result of my research about the atoms this much:

'THERE IS NO MATTER AS SUCH!'

All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together. ... We must assume behind this force the existence of a conscious and intelligent MIND. This mind is the matrix of all matter".

This cosmic matrix is needed if we want to explain "action at a distance", lines of force, stresses, a magnetic field and so on. When the concept of the ether was abandoned, it had to be replaced by the concept of "space" instead. In reality, we merely switched terminology. We used to say that "ether fills all Space". But "filling" is not exactly the descriptive word to use. Perhaps we should rather define it: "Ether is a condition of space in which electrical manifestations for the atomic construction of materials is possible". This primordial energy is "free" or in an uncondensed state. It exists in interstellar space but remains unrecognizable until it begins to coagulate or gets into a vortex pattern. It constitutes the formative field force of nature, an immense reservoir of latent energy.

The claim of our textbooks that the Michelson-Morley experiment "disproved" the existence of the ether is incorrect. It merely disproved the existence of a noticeable ether drift or drag. As an analogy, if somebody would postulate that the absence of wind disproves the existence of the atmosphere around our planet, the fallacy of this postulate would be immediately apparent to all.

"Michelson and Morley centered their attention on the Earth's orbital velocity (30 km per second). They had no knowledge of the existence of galaxies; of motions of galaxies in relation to each other; of the motion of our solar system in our galaxy..... Their negative results are explainable on the basis of pre-1900 classical mechanics, so provide no proof of the absence of ether or Louis de Broglie's

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'subquantum medium'. Thus, the limited information available to Michelson and Einstein is emphasized by recent findings, particularly in astrophysics", writes Dr. H. C. Dudley in the *Bulletin of the Atomic Scientists*, January, 1975, under the title "Michelson's Hunch Was Right". And Dr. Dudley continues: "In fact, 1929 saw Michelson still attempting to experimentally demonstrate the ether, which his intuition and reasoning told him ought to be present".

"Today most persons are largely unaware that the ether concept began to be seriously reexamined by two of physics most notable theoreticians, Paul Dirac in 1951 and de Broglie in 1959, both Nobel laureates. The ether is now being called the "neutrino sea" by astrophysicists, and has been characterized as an energy-rich particulate, subquantum medium. A rather voluminous literature on the subject is accumulating as indicated by a recent review, *The Cosmic Neutrino*, with 665 references covering only the period 1965-1972.....It appears that an open-minded reexamination of this area of physics is long overdue in order to open up new avenues of approach to this pressing problem".

Michelson, Dirac, de Broglie were not the only Nobel prize winners in favor of a reexamination of the ether question. Others were Stark, Arrhenius, A. H. Compton, Lenard, H. Yukawa, and Frederick Soddy, the British scientist who, during the convention of Nobel laureates in Lindau, 1954, described the current dogmas in physics as "an orgy of amateur physics" and "arrogant swindle" - with particular emphasis on the theory of relativity. ("The Wider Aspects of the Discovery of Atomic Disintegration", New World Publications, St. Stephens House, Westminster S.W.I.)

It remained largely unknown, even among physicists, that Einstein himself had serious doubts. In 1949, he wrote to his old friend, Maurice Solovine, who congratulated him on his 70th birthday:

"Now you think that I am looking back at my life's work with calm satisfaction. But, on closer look, it is quite different. There is not a single concept of which I am convinced that it will stand firm and I am not sure if I was on the right track after all".

And one of my Canadian friends who I believe is present here today stated quite correctly in a letter to me:

"The myths around Einstein are really not of his making as he himself often questioned his own conclusions and I felt he was quite aware of his own limitations which others were covering up. The physicists protect their members much the same way that the medical profession protects its own."

The purpose of these remarks is not to spark another controversy about the merits of the theories of relativity. Rather, they want to show that so-called



merits of the theories of relativity. Rather, they want to show that so-called

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"scientific evidence" is a rather elastic term and that "verification" is always a relative affair. Or, as K. R. Popper so aptly put it:

"Only in our subjective experience of conviction, in our subjective faith, can we be 'absolutely certain'".

This symposium presents an excellent overview of research and experiments reported from English speaking countries, or experiments published in the English language, as for instance from Japan. However, as Dr. Tenhaeff from Holland has formulated the problem,

"It is important to pay attention to publications of colleagues in other countries. In the Netherlands and Germany, every academically educated man or woman knows at least three foreign languages. English and American authors only pay attention to material in English. In my opinion, this leads to an 'impoverishment' which puts a drag in science. Some seem very chauvinistic and seem to believe that only the researches done in their country are important. I regret this. Science is international, and international cooperation is of the greatest importance in science".

In presenting some brief reports from abroad, I shall attempt to bring corroborative evidence in support of alternative technology developments discussed during our meeting here in Toronto. Let me start with the most sensitive and secretive society, with Russia.

In his German original of the paper "Some Remarks on the Shielding Theory of Gravity", which was published in the Hanover Proceedings in more detail than the English abstract, Dr. Hans Nieper mentioned the Berlin engineer Levetzow, who was one of the first to postulate a combination pressure and shielding theory for the phenomena of gravity. Levetzow was soon overshadowed by the rising star of Albert Einstein, but one of his followers, Horst Pinkell, went to Russia in 1928 as an exchange student - and never returned. Together with Russian scientists, he was asked to prove the actual existence of the cosmic radiations postulated by Levetzow, now designated as neutrino sea or "tachion field". The work was done in Sterlitamak, South of the Ural mountains, and in 1938, sporadic reports reached the West about the discovery of extremely short corpuscular waves by Pinkell and Gorjew. These were the long sought "Hemmstrahlen" or drag waves associated with gravity. Rumors have it that a metal alloy was soon developed which acted as a drag wave polarisor and, in 1947, agents reported experimental Russian aircraft using this discovery. In 1951, a former German Junkers aircraft engineer reported about his activity pertaining to a super-secret project code named COW-7 in Siberia, a disk-shaped craft which could rise vertically and which belonged to the

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secret weapons then developed by the Soviets. Whether it was related to the Canadian AVRO project or something entirely different remained unknown, only the Lev-etzow gravity theory was assumed in connection with the activity in question.

Japan: My esteemed friend, Prof. Seike, who kept me informed about the research conducted by him and his co-workers, surprised me once with a significant statement, which I feel is important to repeat for the benefit of frustrated researchers on this side of the Pacific: "In the early stage of my studies, physicists could not understand what I was doing, while actors and actresses did so by intuition". It was the private support of about 800 individual artists, etc., in Japan which allowed Seike to work, experiment and publish his findings, and not the support of the Japanese equivalent of a National Science Foundation or a similar bureaucratic institution in that country. Again and again, I was surprised how quickly and eagerly American experiments, as for instance the almost forgotten "Ionocraft" of the late Major de Seversky, were duplicated and explored even in Japanese secondary schools. Admiral Rickover has more than once complained about our intellectual complacency: "As a nation, we seem addicted to 'spectatoritis'. We sit in the bleachers and let the game of life unfold before us".

The results are known: The Japanese have achieved top position in science and technology, and not only with tachion beams melting stones, producing "biased" water with a freezing point of minus 4 degrees Celsius, and a G-power generator obtaining 400 V DC output from a 10 V input driving source. I wish to take this opportunity to thank Prof. Seike for sharing his work with us in this country, and wish him the best of success for the future.

France: The work of SEPED was explained by M. René Louis Valée and some French publications in the area of gravity-research have been translated by the NASA translation service, as for instance the theory of the electromagnetic Magnus-Effect (of Marcel Pagés).

Specific mention must be made of the Raymond Kromrey G-field generator, a French-German-Swiss development which appears very closely related to the American "N" machine principle, the "Sunburst" machine and the "Permanent Magnet-Motor" Patent of Howard Johnson. Utilizing either permanent or electromagnetic modules, the generator output exceeds the input by far. One prototype delivers approximately 700 watts at speeds varying between 600 and 1200 RPM. Models with an output of 100 to 160 kw are presently in the planning stage. Several European patents have been granted against heavy opposition, especially from French industrial circles. The development was about 40 years in the making and the inventor stresses the need for a reinvestigation of electromagnetic and gravitic forces, as well as a reexamination of many cemented dogmas in present-day physics.

...tion of many cemented dogmas in present-day physics.

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Germany: A system of rotating electromagnets and magnetic "stator rings" of the German "Kunel" Generator complement the general trend of the American and French generators mentioned before. The first prototype was reported to have been tested in April, 1980. Here, again, very heavy opposition from the German orthodox science establishment. Of special interest is a comment by Nobel laureate Werner Heisenberg, reported to have been made vis-a-vis the inventor:

"I think it is possible to utilize magnetism as an energy-source. But we science idiots cannot do that; this has to come from the outside".

More details about French and German developments have been published in the new book already mentioned, *Energy in Abundance* by Hilscher and, hopefully, an English version of this important work will be available by next year. Generators which do interact with surrounding energy fields have been designated as "open systems", in contrast to our present "closed system" technology of gasoline and diesel engines, steam turbines, nuclear power plants and so forth. The theoretical basis for all "open systems" is the realization that there simply is no such thing as "empty space". In reality, space is filled with an extremely energy rich, sub-atomic and subquantic continuum. In short, a "pre-physical state of matter", which can be tapped, as for instance by the spinning of magnetic systems which extract momentum via a vortex-formation of the universal "tachion field".

Austria: This small heartland of Central Europe is proud of her native pioneers in science, among them Dr. Wilhelm Reich, Viktor Schauburger and Karl Schappeller. But after Dr. Reich died in an American prison in 1957 and Victor Schauburger died only five days after his return from the USA (in 1958), where he received an incredibly unfair treatment from certain industrialists, there is little enthusiasm among Austrians to touch base with correspondents on this continent. Viktor Schauburger's son, Walter, refuses, as a matter of principle, to communicate with Americans, no matter in what language. To illustrate the type of "contract" Viktor Schauburger was forced to sign, it stated:

that all of his patents would become the property of the "consortium",  
that any future inventions or developments would also become  
the property of the "consortium",  
that he would refrain from discussing any of it with third parties,  
that he would refrain from publishing,  
that all plans and models would remain with the "consortium" after  
his departure from America.

There is a favorite saying in that small country which is much to the point:  
"After the Greek philosopher Pythagoras had discovered his famous

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theorem, he sacrificed a whole hecatomb of oxen as a thanksgiving to the Gods. Ever since, all the oxen in the world are running scared whenever a new truth has been discovered".

Knowledge of the ideas of Schauberger and Schappeller appears to be essential for an understanding of our changing picture of the physical world. As an example, the former forest ranger Viktor Schauberger had watched numerous times some trout standing, apparently motionless, in the strong currents of Alpine mountain streams. This and many similar observations of nature brought him to the gradual development of his "implosion-theory" and associated hardware (see Jensen paper elsewhere). His son is continuing the work in the "Pythagoras-Kepler" School in Bad Ischl. Another prolific researcher is the Viennese engineer Franz Seidl, known for his studies of the use of magnetic field effects as "trigger energy" for voltage and power multipliers.

Holland: A small country with strongly developed intellectual independence appears to be Holland, where Prof. J.M.J. Kooy developed his "Space Dynamics". His hypothesis of gravitational action is based on the realization that all celestial bodies can be conceived as practically transparent in relation to the size of the elementary particles and their mutual distances in the structure of matter. Gravitons or tachions, coming from all directions of deep space, can pass through a celestial body like water passes through a fishnet, and only a minute fraction of the cosmic gravitons or tachions will be intercepted. Study of the effects of the tachion field or space continuum of the fabric of material substances, magnets and crystal lattices can lead to development of converters and novel production facilities for readily usable, conventional E/M energy. When the American inventor Edwin V. Gray was blocked in his efforts to develop his "Pulsed Capacitor Discharge Electric Engine" for which he had received U. S. Patent #3,890,548, he found open ears and open minds in Holland.

The fact that Gray was named "Inventor of the Year" from the Department of Patent Rights in Los Angeles, California, where Dr. Chalfin of Cal Tech confirmed that:

There does not exist an even distantly similar engine to this one in the world. Conventional electric engines use up power. In this system energy is used up for only a minute part of a millisecond. It operates without heat loss and there is no energy loss whatsoever with this system",

had more meaning to the people of PHILIPS and others in Holland than to the energy establishment in his native America.

England: There is perhaps no more controversial inventor at this time than

perhaps there is perhaps no more controversial inventor at this time than

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John R. R. Searl and his Levity Disc, powered by the Searl Effect generator. It is claimed that model craft have been demonstrated with flight characteristics showing anti-gravitational and inertia-free properties. Demonstrations have been photographed and videotaped. Searl calls his generator a "Gyro-Flywheel High Energy Density Mechanical Magnetic Device" and claims that the magnets used are not the common type, ordinary magnets. The Australian engineer Athol Park of Melbourne, Australia, who visited Searl a few years ago described it this way:

"From a briefcase, Mr. Searl takes a bar magnet and two steel rollers. He places the rollers at either end of the magnet. They appear to be attracted to the poles - but, when they are pushed gently around the corners of the magnet, they chase each other round and round.... "

The engineer quotes Searl:

"The crystals in the magnet are changed by putting it in a magnetic flux oven and by frequency control. The result is motion of a magnetic field - a completely new source of power. Units (modules) based on this principle are what power my levity unit - the motor and generator built as one, fuelless unit".

In one of his numerous newsletters he states further:

"The power plant is a self-contained, onboard closed system of conversion elements with energy input from a latent storage source".

Because Searl has never divulged all details and his explanations are generally of a non-technical, "unscientific" nature, many investigators have chosen to dismiss him as a swindler and imposter. In sharp contrast to this is the opinion of a well-experienced American engineer who reported after a visit with Searl:

"I found it refreshing to note the keen sense of moral responsibility which he feels for the use to which his discovery is put... The Searls live in modest circumstances. Luxuries are few. They do not own a car. Mr. Searl bicycles several miles daily to his place of work in Maidenhead. There he is an electrical technician and training supervisor in a bearing factory".

But perhaps most significant was the following observation of the American visitor about Searl:

"We were also interested to hear him say that many of his ideas came to him while he slept. He would go to sleep with questions, and awake with answers... and refreshed. He seemed to have the

and awake with answers... and refreshed. He seemed to have the

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ability to restore vital powers more quickly than most people".

And the American concluded his report with the statement:

"The impression we gained of Mr. Searl was one of a very sincere and generous person, a dedicated and tireless worker with perfect confidence in the outcome of his efforts, a man of high principle with a keen sense of loyalty to those who are helping him, and of responsibility for the future welfare of our planet and its people".

In view of the very contradictory nature of comments and impressions by those who have met Searl, it might be wise to reserve final judgment on the Searl-Levity-Disc and its inventor at this time.

New Zealand: Some of Searl's keenest supporters and observers of his work are in New Zealand and Australia. And one of the sharpest young physicists in that country (new Zealand), unhampered by calcified ideology, developed the mathematical foundation for a theoretical anti-gravity effect, using the hydrodynamic analogy of the ether. He uses the equivalent of the hydrodynamic Reynolds number, above a certain value of which the laminar flow past a solid surface breaks down and becomes turbulent due to shear rupture of the viscous cohesion of a fluid, together with his deduction that anti-gravity could be obtained by creating a "vacuum: in the ether in such a way as to correspond to the production of turbulence in a magnetic field. Turbulence in a fluid occurs when Reynolds number  $RE = 1$ , when the inertial shearing force equals the viscous cohesion force in the fluid in the vicinity of an approximately spherical body immersed in the fluid, resulting in separation of the boundary layer and formation of a wake, i. e. vacuum or free surface around the body. He calculated the threshold for turbulence in the ether, = a vacuum = an anti-gravity effect, using the refined value of ether kinematic viscosity which he obtained.

His theory would confirm the observations of very high voltage produced in the case of the Searl Levity Disc, and the very high voltage needed in the vacuum experiments with flying disc-shaped bodies of T. T. Brown, the "ionocraft" observations of Major de Seversky, the "Electro-Field Rockets of Prof. Dudley, the observations of Northrop Corp. with "Electro-Aerodynamics in Supersonic Flow" and similar American documentation and patents.

Since the New Zealander is now in the process of attempting to publish his theory in a reputable British magazine, I am not at liberty to divulge his address prematurely. Interest in New Zealand and Australia is running high, and possible breakthroughs in energy technology should not come totally unexpected in these two countries with strong intellectual ties to England.

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## Conclusion

There is now overwhelming evidence for the actual existence of a very high density, energy rich space continuum formerly called "ether". This space energy can be concentrated, gathered, focused, magnified and compacted by magnets or magnetic materials, which appear as the new core materials for converters of all kinds, utilizing the cosmic energy for new technology applications.

Crystals are energy-sensing and channeling devices; they can serve as transducers, as for instance in the Moray-Device, or the "rock electricity" of T. T. Brown.

Combinations of crystals and magnetic materials appear to be the mainstay for the development of "hyper-space" - converters and generators of power - utilizing free, cosmic energy in our future.

Unbiased, totally honest and impartial reexamination and reevaluation of all scientific theorems and dogmas, as well as unhampered opportunities for the pioneers of the new technology on the American and European continent appear to be the prerequisite of success.

Those who accept that anything of the nature of ideas or ideology is permanent, use all their strength to hold on to it, and to condemn all who do not agree. The next stage of this spiritual illness of the mind is to build a monument to what they perceive is Truth, and then to build a monument to their own permanence in the world. This, they do by seeking fame or fortune, and authority over others. This is the contemporary, planetary psychology situation, and thus are we losing the gift of perspective and horizon and are no longer able to discern what is important. Skeptics are on record as saying:

"We are not running out of natural resources or intellectual talent, we are running out of the freedom of innovation that made the countries on the North American continent the most advanced nations on earth".

The future will show whether this freedom, which includes the freedom and the duty of taking risks, can be restored to the degree our Founding Fathers have been striving for. Only then will we know whether the late Wernher von Braun was not too overly optimistic when he stated:

"The cosmic age will bring a dawn of knowledge not yet envisioned. It will dwarf all our present knowledge and ideas and, through its vastness, may even bring men closer together on their own planet".

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# **The Motionless Electromagnetic Generator: Extracting Energy from a Permanent Magnet with Energy-Replenishing from the Active Vacuum**

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## **BACKGROUND**

### **Introduction**

For about 10 years the inventors have been working together as a team, and exploring many avenues whereby electromagnetic energy might be extracted from various sources of potential, and eventually from the active vacuum itself. This has been very arduous and difficult work, since there were no guidelines for such a process whereby the electrical power system becomes an open dissipative system in the manner of Prigogine's theoretical models {17-19} but using determinism instead of statistics. There was also no apparent precedent in the patent database or in the scientific database.

Since the present "standard" U(1) electrodynamics model forbids electrical power systems with  $COP > 1.0$ , we also studied the derivation of that model, which is recognized to contain flaws due to its 136-year old basis. We particularly examined how it developed, how it was changed, and how we came to have the Lorentz-regauged Maxwell-Heaviside equations model ubiquitously used today, particularly with respect to the design, manufacture, and use of electrical power systems.

Our approach was that the Maxwell theory is well-known to be a material fluid flow theory, since the equations are hydrodynamic equations. So in principle, anything that can be done with fluid theory can be done with electrodynamics, since the fundamental equations are the same mathematics and must describe consistent analogous functional behavior and phenomena. This means that EM systems with "electromagnetic energy winds" from their external "atmosphere" (the active vacuum) are in theory quite possible, analogous to a windmill in a wind.

The major problem was that the present classical EM model excluded such EM systems. We gradually worked out the exact reason for the *arbitrary* exclusion that resulted in the present restricted EM model, where and when it was done, and how it was done. It turned out that Ludvig Valentin Lorenz {55} symmetrically regauged Maxwell's equations in 1867, only two years after Maxwell's seminal publication in 1865, and Lorenz first made the arbitrary changes that limited the model to only those Maxwellian systems in equilibrium in their energy exchange with their external environment (specifically, in their exchange with the active vacuum). This is not a law of nature and it is not the case for the Maxwell-Heaviside theory prior to Lorenz's (and later H. A. Lorentz's) alteration of it. Thus *removing* this symmetrical regauging condition {31, 34-38} is required—particularly during the discharge of the system's excess potential energy (the excitation) in the load.

Later the great H. A. Lorentz, working independently and apparently unaware of Lorenz's previous 1867 work, independently regauged the Maxwell-Heaviside equations so they represented a system that was in equilibrium with its active environment.

### **Implications of the Arbitrarily Curtailed Electrodynamics Model**

Initially an electrical power system is *asymmetrically* regauged by simply applying potential, so that the system's potential energy is nearly instantly changed. The well-known gauge freedom principle in gauge field theory assures us that any system's potential—and hence potential energy—can be freely changed in such fashion. In principle, this potential energy can then be freely discharged in loads to power them, without any further input from the operator. In short, there is absolutely no theoretical law or law of nature that prohibits  $COP > 1.0$  electrical power systems—else we have to abandon the successful modern gauge field theory.

But present electrical power systems do no such thing. However, all of them do accomplish the initial asymmetrical regauging by applying potential. So all of them do freely regauge their potential energy, and the only thing the energy input to the shaft of a generator (or the chemical energy available to a battery) accomplishes is the creation of the potentializing entity—the source dipole.

It follows that something the present systems perform in their discharge of their nearly-free<sup>1</sup> regauging energy must prevent the subsequent simple discharge of the energy to power the loads unless further work is done on the input section. In short, some ubiquitous feature in present systems must self-enforce the Lorentz symmetry condition (or a version of it) whenever the system discharges its free or nearly free excitation energy.

Lorentz's curtailment of the Maxwell-Heaviside equations greatly simplified the mathematics and eased the solution of the resulting equations, of course. But applied to the design of circuits—particularly during their excitation discharge—it also discarded the most interesting and useful class of Maxwellian systems, those exhibiting  $COP > 1.0$ .

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<sup>1</sup> In real systems, we have to pay for a little switching costs, e.g., but this may be minimal compared to the potential energy actually directed or gated upon the system to potentialize it.

Consequently, Lorentz<sup>2</sup> unwittingly discarded all Maxwellian systems with "net usable EM energy winds" during their discharge into their loads to power them. Thus all present systems—which have been designed in accord with the Lorentz condition—cannot use the electromagnetic energy winds that freely arise in them by simple regauging, due to some universal feature in the design of every power system that prevents such action.

We eventually identified the ubiquitous closed current loop circuit as the culprit which enforces a special kind of Lorentz symmetry during discharge of the system's excitation energy. With this circuit, the excitation-discharging system must destroy the source of its EM energy winds as fast as it powers its loads and losses, and thus faster than it actually powers its loads.

Also, as we stated and contrary to conventional notions, batteries and generators do not dissipate their available internal energy (shaft energy furnished to the generator, or chemical energy in the battery) to power their external circuits and loads, but only to restore the separation of their internal charges, thereby forming the source dipole connected to their terminals. Once formed, the *source dipole* then powers the circuit {16, 22}.

### Some Overlooked Principles in Electrodynamics

We recovered a major fundamental principle from Whittaker's {1} profound but largely ignored work in 1903. Any scalar potential is *a priori* a set of EM energy flows, hence a set of "electromagnetic energy winds" so to speak. As shown by Whittaker, these EM energy winds pour in from the complex plane (the time domain) to any x, y, z point in the potential, and pour out of that point in all directions in real 3-space {1, 26, 43}.

Further, in conventional EM theory, electrodynamicists do not actually calculate or even use the *potential itself* as the unending set of EM energy winds or flows that it actually is, but only calculate and use its *reaction cross section with a unit point static charge at a point*. How much energy is diverged around a single standard unit point static coulomb, is then said to be the "magnitude of the potential" at that point. This is a non sequitur of first magnitude.<sup>3</sup>

E.g., just as the small "swirl" of water flow diverged to stream around an intercepting rock in a river bottom is not the river's own flow magnitude, and certainly is not the "magnitude of the river", neither is the standard reaction cross section of the potential a measure of the potential's actual "magnitude". Indeed, the potential's "magnitude" with respect to any local interception and extraction of energy from it, is limited only by one's ability to (1) intercept the flow and (2) diverge it into a circuit to power the circuit. The energy flows identically comprising the potential {1} replenish the withdrawn energy as fast as it can be diverged in practical processes, since the energy flows themselves move at the speed of light.

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<sup>2</sup> Although Lorenz did this first, such was H.A. Lorentz's prestige that when he advanced symmetrical regauging, it was rather universally adopted by electrodynamicists, and is still used by them today. E.g., see J.D. Jackson, Classical Electrodynamics, 2nd Edition, Wiley, New York, 1975, p. 219-221; 811-812.

<sup>3</sup> E.g., just replace the assumed unit point static charge assumed at each point with  $n$  unit point static charges, and the collected energy around the new point charge will be  $n$  times the former collection. If the former calculation had yielded the actual magnitude of the potential at that point, its magnitude could not be increased by increasing the interception. But since the potential is actually a flow process, increasing the reaction cross section of the interception increases the energy collection accordingly.

## Work-Energy Theorem In a Replenishing Potential Environment

We also came to better understand the conservation of energy law itself. Particularly, the present work-energy theorem assumes only a "single conversion" of energy into a different form, where such "conversion in form" due to a converting agent is what is considered "work" upon that agent. No "replenishing by a freely flowing energy river or process" is considered.

On the other hand, in a replenishing potential environment, a conversion in the form of the energy may increase the energy (e.g., the kinetic energy of an electron gas) of the converting agent, but all the field energy and potential energy input to that converting agent may be replenished, so that a *free regauging* occurs. In that case, the original energy can be changed—e.g., into field energy form, which is not the kinetic energy of the electron gas—and yet a joule of work can have been done upon the electron gas to alter its potential energy by as much work as was done on it. Thus the work performed by this change in energy form with simultaneous replenishment of the original form, may increase the energy of the medium while retaining as much field energy and potential energy as was input, but just in different form.

This is a profound change to the implicit assumptions used in applying the work-energy theorem. In short, the present work-energy theorem (without replenishment) was found to be a special case of a much more general and extended *energy-conversion-of-form-with-intermediate-work-performed-upon-the-converter* process. *Conversion of the form of energy* is rigorously what we call *work*. The energy is not consumed in the process, nor need it be "lost" in doing work upon the converter. So to speak, the well-established principle of gauge freedom has been arbitrarily overlooked in the conventional view of the work-energy theorem. As a short way of stating what we found, *the conventional form of the work-energy theorem applies only when there is no simultaneous regauging/replenishment involved*.

This extension of the work-energy theorem to a more general case has profound implications in physics. With the energy replenishing environment involved, the work-energy theorem becomes an energy-amplifying process. Energy can be freely amplified at will—anywhere, anytime—by invoking the extended energy-work process, if regauging accompanies the process simultaneously. Indeed, one joule of field energy or potential energy can do joule after joule of work on intermediary converters, increasing the kinetic energy etc. upon the converter medium, while retaining joule-for-joule of the input energy in differing field or potential forms. In this extended process, always after each joule of work on the converting agent there still remains a joule of field energy or potential energy of altered form.

## The Extended Principles Permit COP>1.0 Electrical Power Systems

Gradually we realized that (1) electrodynamics without the arbitrary Lorentz regauging did permit asymmetrically self-regauging electrical power systems, freely receiving and converting electrical energy from their vacuum environment, (2) present systems are designed unwittingly to guarantee the re-imposition of symmetry during their excitation discharge, (3) this excitation symmetry is what must be and can be broken by proper system design, and (4) a magnetic system "powered" by a permanent magnet dipole's ongoing active processes {1, 26, 43} could readily be adapted so that the source dipole of the permanent magnet was not destroyed by the

circulating magnetic flux. We experimented on various buildups and prototypes, in this vein, for some years.

### Patenting and Discovery Activity

In 1997 we filed a provisional patent application on the first prototype of real interest. We filed another formal patent application in 2000 after several years of experimentation in which we used multiple extraction of energy from the magnetostatic scalar potential formed between the poles of a permanent magnet. Here we reasoned that, in so doing, we would deplete the magnetic dipole, and our experiments sometimes seemed to indicate that a very slow depletion might indeed be happening.

Since our last formal patent application filing in 2000, additional build-ups and experiments have led us to the conclusion that it is not necessary to deplete the magnetic monopole. Instead, if one draws the energy *directly from the potentials* (primarily, from the magnetic vector potential) furnished by the magnetic dipole of the permanent magnets, one can essentially draw as much energy as desired, without affecting the dipole itself. And again, we found that any amount of energy can be withdrawn, so long as it is changed in form in the withdrawal. A giant negentropy mechanism—recently uncovered by Bearden {26} and further investigated by Evans and Bearden {43}—is associated with the magnet dipole, and in fact with any dipole as shown by Whittaker {1}. This negentropy mechanism {1, 26, 43} will replenish the magnetic vector potential energy to the permanent magnet dipole as fast as energy is withdrawn from it and into the circuit.

We hit upon the stratagem of using a highly specialized magnetic core material, nanocrystalline in nature and in special tape-wound layered structure, to try to extract the energy from the magnetic vector potential (**A**-potential) as a magnetic **B**-field (curl of the **A**-potential) that is locally restricted to the special nanocrystalline material which forms a closed magnetic flux path closed on both poles of the permanent magnet dipole. It turned out that the nanocrystalline material,<sup>4</sup> because of its nature and also its tape-wound layered construction, actually will perform this separation of **B**-field and **A**-potential energy which is heretofore unheard of in such a simple magnetic core mechanism and flux path material.

We point out that a tightly wound, very long coil does a similar thing, as does a good toroid, and these effects of separating **A**-potential from **B**-field are known. But to our knowledge, such effects have not previously been utilized in magnetic core materials themselves, in a flux path through space. Our experimental measurements showed the magnetic field to be missing in the space surrounding the closed-path flux-path material, but the **A**-potential was indeed present and did interact with coils in normal manner. We also showed that the **B**-field and associated magnetic flux were rigorously confined internally to the nanocrystalline material flux path.

This then led to very novel ramifications and phenomenology, which we have been intensely exploring since filing the previous patent when we were depleting the magnetic dipole of the permanent magnet or seemed to be. Now we have no depletion of the magnetic dipole, and also

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<sup>4</sup> Obtained off-the-shelf as a commercial product from Honeywell.

we can now explain where the continuous "magnetic energy wind" comes from, what triggers and establishes it, and how to apply the resulting principles.

Consequently, rapid progress in non-depleting versions of our previous invention, as a full extension to both the previous invention and also to the previous process utilized (depletion of stored potential energy), has been accomplished.

### **Results of the Research**

It is now clear—by fluid flow analogy and actual experiment—that we have found the perfect magnetic mechanism for (a) producing "magnetic energy winds" at will, furnished freely by nature in natural dipole processes only recently recognized {26} and clarified {43} in the literature, (b) producing a magnetic "windmill", so to speak, that freely extracts energy from these free winds provided by nature from these newly-understood processes, and (c) creating positive energy feedforward and feedback iterative interactions in a coil around a core, resulting from dual energy inputs to the coil from (1) actions in the core inside the coil (2) actions in the surrounding altered vacuum containing a continuously replenished field-free magnetic potential  $\mathbf{A}$ , and hence comprising a separate source of energy that will react with a coil.

The *iterative* interactions occurring between the two interactions in the coil, add a third increase of energy from the resulting convergent energy gain (asymmetrical self-regauging) series. The additional amplification of the energy is given by the limit of the resulting convergent series for energy collection in the coil. In this novel new usage, the net result is that the coil is an *energy amplifying* coil, freely and continuously fed by excess input energy from an external active source.

It turns out that a multiplicity of such positive energy feedforward and feedback loops occur and exist between all components of the new process. The system becomes a true open system receiving excess energy from the free flow of energy established in its vacuum environment by the subprocesses of this invention's system process.

Consequently, we have experimentally established this totally new process and field, and also have experimentally established that it is not necessary to deplete the permanent magnet dipole after all. Now, direct replenishment energy from the active vacuum can readily be furnished to the permanent magnet with the new techniques being utilized.

### **THREE IMPORTANT PRINCIPLES AND MECHANISMS**

We explain three very important principles/mechanisms necessary to comprehend the new process in a replenishing potential environment:

- (1) The conservation of energy law states that *energy cannot be created or destroyed*. What is commonly not realized is that energy can be and is reused (changed in form) to do work, over and over, while being replenished (regauged) each time. If one has one joule of energy collected in one form, then in a replenishing potential environment one can change all that joule into a different form of energy, thereby performing one joule of work. However, one still has a replenished joule of energy remaining, by the conservation of energy law in such an environment, since the first joule was removed in different form. If one collects and holds

that remaining joule in its new form, and then changes the form of it yet again in the replenishing environment, one does another joule of work—and still has a joule of energy left, just in a yet different form. The process is infinitely repeatable, limited only by the ability to hold the changed form of the energy each time it is changed.

Further, only two energy forms are needed for endless iterative shifting of form—say, form **A** and form **B**, since **A** changed totally into **B** performs work upon the transforming medium equal to **A** energy dissipation, but yields **A**-equivalence amount of energy still remaining because of replenishment. The **B**-form energy can then be changed back from **B** to **A** yet again, wherein the same amount of work is done upon the transforming medium for the second time, and one *still* has a joule of energy remaining because of replenishment, now back in the original form. This process can be iterated. We call this the ping-pong principle and use the iterative work done by each replenished change of energy form to continually increase the excitation energy of a receiving entity, the Drude electron gas in the coil and its attached circuit. We accent that this is also a novel way to directly utilize free regauging energy.

Cyclic transform of the energy by "ping-pong" between two different forms of energy or energy states with replenishment, is all that is required to produce as much work as one wishes in the intermediary, from a single joule of operator-input energy, limited only by one's ability to hold the new form of energy after each transformation and not lose it (or not lose all of it). By letting this iterative ping-pong work be done upon the Drude electron gas, the energy of that gas is excited much more than by the energy we input, if the input energy were only used once to perform work (if its form were only changed once).

We stress that present electrical power systems deliberately use their collected energy only once, and do not take advantage of energy regauging by free replenishment from the potential environment. So engineers are totally unfamiliar with the ping-pong mechanism and do not apply it. In short, they simply do not use the ping-pong effect to dramatically increase the energy in the Drude electron gas in the external circuits connected to the generator or battery.

- (2) The **A**-potential and the **B**-field are extraordinarily useful for just such "ping-pong" iterative change of energy form, from **B**-field energy to **A**-potential energy and vice versa, back and forth, repeatedly. That is precisely what happens in each coil of the process of the invention, and this results in dual inputs of energy—one in curl-free **A** form and one in **B** form—simultaneously to the coil. Quite simply, one can extract the energy from a volume of **A**-potential, in **B**-field form where the **B**-field energy is removed from the volume, and the **A**-potential beyond will instantly (at least at the speed of light) simply refill the volume, but with curl-free **A**-potential.

A similar effect is also demonstrated by the well-known Aharonov-Bohm effect {13, 15}, but only in very small effects, without the ping-pong effect, and not used in power systems. By analogy, we may compare this iterative process to "dipping several buckets of water in succession" from a mighty rushing river; the river refills the "hole" immediately after each dipping. We can continue to extract bucket after bucket of water from the same spatial



volume in the river, because of the continual replenishment of the extracted water by the river's flow.

Any change of **B**-field energy in the center of the coil, interacts with the coil magnetically since the coil's magnetic field is at its greatest strength in its precise center, and the center of the coil is in the center of the core flux path material. This magnetic interaction between core and coil produces voltage and current in the coil and therefore in a closed external loop containing the coil, and simultaneously produces an additional equal energy outside the coil in the form of field-free **A**-potential, which is absolutely permitted since the magnetic energy in **B**-form was "dissipated" (transformed) into **A**-potential energy, thereby causing the electrons in the wires to flow by doing work that built voltage and current, which was a change of form of the **B**-field energy. Simultaneously, the current electrons produce the **A**-potential energy around the coil and outside it, which is absolutely permissible since a change in form of the energy is again involved.

Since these changes in energy form occur at the speed of light, in a local coil they appear "instantaneous" though in reality they are not quite instant, but just very rapid. However, the work produced by each change of form of the energy in that rapid "ping-pong" between the several energy states, continually produces *work upon the Drude electrons*, producing momentum and motion in the Drude gas, thus resulting in voltage and current. In this way, the increased momentum and motion—involved in the currents flowing in the voltage drop of the coil and external loop—result in increased stored kinetic energy in the moving Drude gas, which is electromagnetic energy of different form.

As can be seen, because of the speed of the ping-pong energy state transformations, with each transformation doing work in the Drude electron gas to increase that gas's excitation and energy, a continuous "collection" of excess energy—caused purely by the change of form of the energy and not by "loss" or "disordering" of the energy—occurs in the Drude electron gas, resulting in increased voltage and current in the circuit containing the coil. This is simply a mechanism for a "regauging" or change of potential energy of the Drude electron gas system. The Drude electron gas system's increased excitation energy can then be dissipated "all at once" in conventional fashion in the external load, providing more energy dissipated as work in the load than was input to the coil originally.

Hence there is generated an *energy amplifying* action of the coil and its multiplicity of processes. There is no violation of the energy conservation laws, of the laws of physics, or of the laws of thermodynamics since this is an open system far from equilibrium with its source of potential energy (the magnetic dipole of the permanent magnet), which in turn continuously receives replenishment energy from the vacuum by a giant negentropy process only recently uncovered by one of the inventors {26} and clarified by Evans and Bearden{43}.

- (3) The dissipation of the final collected regauging energy within the load can permissibly be greater than what we ourselves initially input<sup>5</sup>, because of the iterative change of form of the energy with replenishment. Therefore the iterative interactive work done on the Drude electron gas provides more than one joule of work done on the gas—thereby increasing its potential energy by more than one joule—for each joule of energy input by the operator to the system process. The cumulated potential energy in the Drude electron gas is then discharged in loads in normal fashion. Note that, even here, the energy is not lost when dissipated from the load and outside the system, but just flows out of the load in a different form (e.g., as heat radiated from a resistor load). Again, this is no different from a windmill in a wind.

The various asymmetrical regaugings violate Lorentz's arbitrary symmetrical condition—specifically in the discharge or change of form of the energy. Hence, this process restores to electrodynamics one group of those missing Maxwellian systems arbitrarily discarded by first Lorenz and later Lorentz, more than a century ago.

### **THE PROCESS IS THEORETICALLY SUPPORTED**

Several rigorous scientific papers {27-40} by the Alpha Foundation's Institute for Advanced Study (AIAS) have been published or are in the publication process, fully justifying that energy currents (energy winds) can readily be established in the vacuum, and that such energy winds do allow the extraction of EM energy from the vacuum.

Also Cole and Puthoff {54} have previously shown that there is no prohibition in thermodynamics which prevents EM energy being extracted from the vacuum and utilized to power practical systems.

In electrochemistry it has long been known {21} that there can be no current or movement in electrodes without the appearance of excess potential (regauging) called the *overpotential*.

Further, in the most advanced model in physics—gauge field theory—the freedom to change gauge (in electrodynamics, to change the potential) at will and freely, is an axiom of the theory. If we freely change the potential of a physical power system, we freely change its potential energy (in a real system, we may have to pay for a little switching energy losses).

It follows that we can also freely change the excess potential of that system—regauge it—yet again, by any means we choose, including discharging that excess potential energy in a load to do work. Thus gauge field theory has for decades already axiomized the rigorous basis for COP>1.0 electrical power systems—but the Maxwellian systems necessary to do it have remained neglected due to their arbitrary discard by the ubiquitous use of Lorentz symmetrical regauging.

That such COP>1.0 electrical power systems have not been previously designed or built is therefore not due to a prohibition of nature or a prohibition of the laws physics at all, but is due

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<sup>5</sup> See references 9-11. Actually, the standard calculation of the Poynting energy flow is not the calculation of the total EM energy flow at all, but only a calculation of how much of the energy flow is intercepted by the surface charges of the circuit and thereby diverged into the conductors to power the Drude electrons.

to a characteristic used to design and build the systems themselves. Because of their ubiquitous closed current loop circuits, conventional power systems use half their collected energy to destroy their own source dipoles, which destroys any further use of energy from "the potential between the ends of the dipole" since both dipole and potential vanish. The potential of the source dipole, after all, is what potentializes the external circuit with additional excitation energy, to be utilized to power the system. In present systems, half that excitation energy is dissipated to destroy the dipole along with the source potential, and less than the remaining half is used to power the load. This rigorously limits such systems to  $COP < 1.0$ .

In the present invention, we do not destroy the potentializing source dipole, which is the magnetic dipole of the permanent magnet. We include the vacuum interaction with the system, and we also include the broken symmetry of the source dipole in that vacuum exchange—a broken symmetry proven and used in particle physics for nearly a half century, but still inexplicably neglected in the conventional Lorentz-regauged subset of the Maxwell-Heaviside model.

Consequently, our work and this novel process are rigorously justified in both theory and experiment, but the principles and phenomenology are still not incorporated in the classical electrodynamics theory utilized to design and produce electrical power systems. These principles are indeed included in the new  $O(3)$  electrodynamics being developed by AIAS<sup>6,7</sup> that extends the present  $U(1)$  electrodynamics model, as shown by some 90 scientific papers carried by the U.S. Department of Energy on one of its scientific websites in *Advanced Electrodynamics*, and by an increasing number of publications in *Foundations of Physics*, *Physica Scripta*, *Optik*, etc.

We thus have invented a process which indeed is well-founded and justified, but the basis for it is not yet in the texts and university courses. It is our belief that this absence will be rapidly rectified in the universities, in both the physics and electrical engineering departments, upon the advent of practical self-powering electrical power systems freely regauging themselves and extracting energy from the magnetic dipole of a permanent magnet, with the energy being continuously replenished to the dipole from the active vacuum via the new giant negentropy {26, 43} process.

## **CONSIDERING THE PROCESS**

### **A-Potential and Field-Free A-Potential**

This invention relates generally to the field of electromagnetic power generation. Specifically it relates to a totally new field of extracting additional electromagnetic energy in usable form from a permanent magnet dipole's potential energy, in addition to the electromagnetic energy extracted from its magnetic field energy, wherein the excess potential

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<sup>6</sup> The Alpha Institute's Institute for Advanced Study (AIAS).

<sup>7</sup> A private communication from Dr. Myron Evans, 30 Sept. 2000, rigorously confirms that the magnitudes of the vector potential and the 4-current do in fact provide EM energy from the vacuum, and determine its magnitude as well.

energy taken from the magnet dipole is continuously replenished to the permanent magnet dipole from the active vacuum that is a curved spacetime with an ongoing giant negentropy flow process {26, 43}.

With respect to the electrostatic scalar potential, electrodynamicists are familiar with the fact that unlimited energy can be extracted from a potential. The very simple equation

$$W = \emptyset q \quad [1]$$

gives the amount of energy  $W$  in joules, which is collected at any given point  $x, y, z$  from the electrostatic scalar potential—whose reaction cross section is given by  $\emptyset$ , in joules collected per point coulomb—by charges  $q$  in coulombs and located at point  $x, y, z$ . Note that as much intercepting charge  $q$  as desired can be used at any point to increase the energy collection at the point, and collection can be accomplished at as many points  $x, y, z$  as is desired.

So any amount of energy can be collected from any nonzero scalar potential, no matter how small the potential's reaction cross section, if sufficient intercepting charge  $q$  and collecting points  $x, y, z$  are utilized. In short, one can intercept and collect energy from a potential indefinitely and *in any amount*, and *in any form taken by the interaction*, because the potential is actually a set of EM energy flows in longitudinal EM wave form, as shown by Whittaker {1} in 1903 and further expounded by Bearden {24, 26}. Subsequently, Evans and Bearden {43} have more rigorously interpreted Whittaker's {1} work and extended the principle into power systems. Thus any energy diverged and "withdrawn" from the potential in a given local region of it, is immediately replenished to the potential and to that region from the complex plane (the time domain) by the potential's flowing EM energy streams {1, 26, 43}, as rapidly as the energy is deviated and withdrawn.

For the magnetic vector potential, some preliminary comments are necessary. First, for over a hundred years it has been erroneously advanced that the magnetic vector potential  $\mathbf{A}$  is "defined" by the equation

$$\mathbf{B} = \nabla \times \mathbf{A} \quad [2]$$

This is easily seen not to be a definition at all, since an equation says nothing about the nature of anything on its right or on its left, but merely states that the entire right side has the same magnitude as does the entire left side. For an expression to be a *definition*, it must contain an identity ( $\equiv$ ) sign rather than an equal ( $=$ ) sign. Hence in seeing what is attempted to be defined, we rewrite equation [2] as

$$\mathbf{B} \equiv \nabla \times \mathbf{A} \quad [3]$$

Now it is seen that it is the magnetic field  $\mathbf{B}$  that is being defined as the curl of a swirling  $\mathbf{A}$ -potential, which swirling component we will call  $\mathbf{A}_C$  for the " $\mathbf{A}$  circulating" component of  $\mathbf{A}$ . The curl of the circulating  $\mathbf{A}$  is a magnetic field  $\mathbf{B}$ , by identity [3]. There may of course be present additional  $\mathbf{A}$ -potential that has zero curl, but that additional longitudinal  $\mathbf{A}_L$ -potential or  $\mathbf{A}_L$ -current does not produce a magnetic field  $\mathbf{B}$  per se. However, it does interact with charges, which add the curl operator and produce  $\mathbf{B}$ -field.

In 3-dimensions, the field-free  $\mathbf{A}_L$  potential may be moving longitudinally, in which case it is identically an electrical potential " $\phi$ " that is moving longitudinally and hence no longer really a *scalar* potential  $\phi$  but a vector potential  $\Phi$ . If  $\Phi$  translates without changing magnitude, there is no  $\mathbf{E}$ -field and hence  $\Phi$  is a field-free vector potential. Identity [3] still does not define  $\mathbf{A}$ , but defines  $\mathbf{B}$  in terms of  $\mathbf{A}$  and the curl operator. Note particularly that, in identity [3], we may have additional  $\Phi$  present as a curl-free, longitudinal magnetic vector potential  $\mathbf{A}_L$  and we shall refer to this additional curl-free magnetic vector potential as  $\mathbf{A}_L$  (for longitudinally translating  $\mathbf{A}$  component without swirl).

### General Relativistic Considerations

Rigorously we are using the Sachs unified field theory view that energy of whatever form represents a curvature in spacetime (ST). We argue that how we then observe or "see" the energy effects and label them, depends on the factors of physical interaction with that ST curvature. Thus interaction with magnetic charge produces magnetic energy aspects, while interaction with electrical charge produces electrical energy aspects, etc. Motion of either of the interactions lets us also "see" some of the magnetic energy as electrical energy, and some of the electrical energy as magnetic energy, etc.

However, when  $\mathbf{A}_L$  interacts with electrical charge, the charge may swirl, in which case the swirling component of the  $\Phi$  moving with the charge is an  $\mathbf{A}_C$  component, and this  $\mathbf{A}_C$  swirling component will produce a magnetic field  $\mathbf{B}$  by identity [3].

As we stated, in the unified field theory approach being used {42, 44-46}, in spacetime all energy is simply a special curvature of that spacetime, regardless of the form of the energy. Hence one can readily visualize the energy being changed from a vector potential to a scalar potential and vice versa, depending simply upon whether the potential is moving or stationary with respect to the frame of the observer (the laboratory frame).

It is also a well-known facet of general relativity that any change of energy density in spacetime *a priori* is associated with a curvature of spacetime.<sup>8</sup> What has been neglected in general relativity (and arbitrarily discarded in electromagnetic theory long before general relativity was born) is the enormous EM energy flow filling the space around every EM circuit {24}, with almost all of it missing the circuit entirely, and not being intercepted and diverged into the circuit to power it.

This non-intercepted huge energy flow was recognized by Heaviside {10, 11}, not even considered by Poynting {9}, and arbitrarily discarded by Lorentz {51} as having "no physical significance" because it did not strike the circuit and power any part of it.<sup>9</sup> It is still arbitrarily discarded today, using Lorentz's discard method.

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<sup>8</sup> That is, with the single exception of gravitational field energy, and even that exclusion has been challenged.

<sup>9</sup> This is rather like discarding all the wind on the ocean except for that tiny component of it that strikes the sails of one's own sailboat. It is true that the wind missing one's own boat has no further significance for that one boat, but it may of course be captured in the sails of an entire fleet of additional sailing vessels to power them quite nicely. Hence the statement of "no physical significance" is a non sequitur; "no physical significance to that one specific

Also, it is still largely unrecognized in Western science that pure general relativity contains no energy conservation equations {47, 48} of the kind encountered in electrodynamics and mechanics. This is easily seen by considering the impact of gauge freedom, which allows the potential energy of any region of spacetime to be *freely* changed at will. But this is also a form of freedom of spacetime curvature, hence the notion of *fixed* accountability of energy replenishment and dissipation is completely voided by gauge freedom.

The great scientist Hilbert {48} first pointed out this remarkable absence of energy conservation laws from general relativity, not long after Einstein published his theory.

It also appears that the ultimate energy interaction is the transduction of energy-form between the time-domain (complex plane) and 3-space. In fact, *all 3-spatial EM energy actually comes from time-like EM energy currents after 3-symmetry breaking* {1, 26, 43}.

### Indefiniteness Is Associated with the **A**-Potential

A magnetic vector potential **A** produced by a current-carrying coil not tightly wound or closed (or very long), must possess both a swirl component **A<sub>C</sub>** (from the circling of the coil in each turn of the coil) and a longitudinal component **A<sub>L</sub>** from the longitudinal advance of the current between coils, since a coil is actually a helix and not a set of circles. It will also possess a magnetic field, both inside the coil and outside it.

Hence, considering both curled and curl-free types, the actual magnitude of **A** is always indefinite—and in fact the indefinite nature of the potential together with the freedom to change it at will is universally recognized by electrodynamicists {7, 14}. However, the prevailing argument that change of potential does not affect the system is a non sequitur.

Further, in 1904 E. T. Whittaker {2} showed that any electromagnetic field, wave, etc. can be replaced by two scalar potential functions, thus initiating that branch of electrodynamics called *superpotential theory*. Whittaker's two scalar potentials were then extended by electrodynamicists such as Bromwich, Debye {3}, Nisbet {4} and McCrea {5} and shown to be part of vector superpotentials {6}, and hence connected with **A**.

### Applying the Giant Negentropy Mechanism

So let us consider the **A**-potential most simply as being replaced with such a Whittaker {1, 2} decomposition. Then each of these scalar potentials—from which the **A** potential function is made—is decomposable into a set of harmonic phase conjugate wavepairs (of longitudinal EM waves). If one takes all the phase conjugate half-set, those phase conjugate waves are converging upon each point in the magnetic vector potential **A** from the imaginary plane (from the time domain). At that same point in **A**, the other waveset—comprised of the harmonic set of longitudinal EM waves in 3-space—is outgoing. The 4-conservation of EM energy requires that the incoming energy to the point from the complex plane is being transformed at the point (by the assumed unit point charge at that point) into real EM 3-space

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circuit" is better—but even then is incorrect if additional "sails" (interceptors) are added to catch more of the available energy wind and diverge more of it into the circuit.

energy, and radiating outward from that point as real EM energy, in this case in the form of the magnetic vector potential  $\mathbf{A}$  without curl since the curl operator is absent.

We have previously pointed out {22, 24, 26, 43} that this energy flow input from the complex plane to every point in the potential, with its output in real 3-space, is a more fundamental symmetry than is the usually assumed 3-symmetry in EM energy flow. Further, it is a giant negentropy and a continuous, sustained reordering of a fraction of the vacuum energy, and the reordering continues to expand in space at light speed so long as the source dipole for the potential exists.

What this means is that the  $\mathbf{A}$  potential—in either of its components  $\mathbf{A}_L$  and  $\mathbf{A}_C$ —is not to be thought of as having "fixed energy" since it consists of and identically is a myriad energy flow processes ongoing between the time-energy domain (the complex plane) and the real energy domain (real 3-space).

As is any potential including the electrostatic scalar potential  $\phi$  between the poles of an electric dipole and the magnetostatic scalar potential  $\mathcal{O}$  between the poles of a permanent magnet, the  $\mathbf{A}$ -potential is an ongoing set of longitudinal EM energy flows between the time domain (imaginary plane) and real 3-space {1, 26, 43}.

We stress that the EM energy flows comprising the so-called "scalar" potential and all "vector" potentials, violate 3-flow symmetry in energy conservation, but rigorously obey 4-flow symmetry. There is no law of nature that requires that energy be conserved in 3-space! If we work in 4-space as is normal, then the laws of nature require that energy be conserved in 4-space, as is done by the potential. Imposing the arbitrary additional requirement of 3-flow energy conservation imposes a 3-symmetry-restoring operation which destroys or nullifies the giant negentropy 4-process<sup>10</sup> of the dipole {26} and results in system 3-equilibrium with the active vacuum. It results in design and production of electrical power systems exhibiting only  $COP < 1.0$ . The ubiquitous closed current loop circuit design produces a circuit that deliberately (though unwittingly) re-imposes the 3-flow symmetry, kills the dipole and the giant negentropy process, requires at least as much continuous input energy by the operator as was utilized to kill the dipole, and has generated the gigantic burning of hydrocarbons and the pollution of the biosphere.

### **A Negative Resistance Process**

Because of its giant negentropy process {26, 43}, any potential is an open EM energy flow system, freely receiving energy from the complex plane in its active vacuum environment, transducing that received reactive power (in electrical engineering terms) into real power, and outputting real EM energy flow in space in all directions at the speed of light {26, 43}.

The vacuum-dipole energy exchange process is negentropic {26, 43}, since there exists total 1:1 correlation between the inflowing longitudinal EM waves in the complex plane and the

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<sup>10</sup> Which in turn destroys the ability of any observable to exist (in time). An observable is *a priori* a 3-space fragment of an ongoing 4-space interaction, torn out at one frozen moment of time. The fact that observables do not persist in time has profound impact upon the foundations of physics, but its implications remain to be explored.



outflowing EM waves in real 3-space {1, 26, 43}. The potential then may rigorously be regarded as a novel kind of *negative resistor*, constituting an automatic ongoing negative resistance process. By *negative resistance process* we mean that the spatial points occupied by the potential continuously

- (1) receive EM energy in unusable form (in the form of longitudinal EM waves input from the complex plane, which is the continuous receipt of reactive power),
- (2) transduce the absorbed/received energy into usable form (real energy in 3-space), and
- (3) output the received and transduced EM energy as usable EM energy flow in 3-space.

Thus associated with and comprising any potential and any dipolarity—including the dipolarity of a permanent magnet—we have a novel, free source of EM energy from the vacuum's complex plane (reactive power input, in electrical engineering terms, with real power output). That is true whenever we have a potential of any kind, either  $\mathbf{A}$  or  $\phi$ , or a dipole of any kind, either electrical or magnetic, or a polarization. Further, any energy we divert (collect) from this potential by and upon intercepting charges, and hold it in the localized vicinity of the charge, is an energetic excitation of the perturbing charges.

### **Modeling the Transduction Mechanism**

Charges can be thought of as rotating  $720^\circ$  in one "full rotation", being  $360^\circ$  rotation in the complex plane followed by  $360^\circ$  rotation in real 3-space. The charges in the source dipole thus absorb the incoming reactive power while rotating in complex space and are excited therein, then re-radiate this absorbed EM excitation energy in real 3-space during their subsequent  $360^\circ$  rotation in that 3-space. Further, all the energy diverted from the energy flows comprising the potential, is immediately replenished by the vacuum to the source dipole, by the stated giant negentropy mechanism {26, 43}.

### **Replenishment Via Giant Negentropy**

It follows that we may collect energy from an  $\mathbf{A}$ -potential of a permanent magnet by applying the curl operator to  $\mathbf{A}$ , then withdrawing and holding the resulting  $\mathbf{B} = \nabla \times \mathbf{A}$  magnetic field energy in a localized material flux path. That is the withdrawal of  $\mathbf{A}_C$  energy from the overall  $\mathbf{A}$  potential in space, which is the withdrawal of  $\mathbf{A}_C$  energy from the magnetostatic potential outflow dynamics between the poles of the magnetic dipole of the permanent magnet. This withdrawal and sharp path localization of the  $\mathbf{A}_C$  energy from the permanent magnet dipole's outpouring  $\mathbf{A}$ -potential energy will be continuously replaced at light speed by the giant negentropy process {1, 26, 43} engendered in 4-space by the magnetic dipole of the permanent magnet. Hence an unlimited amount of energy may be withdrawn from the  $\mathbf{A}$ -potential in space around the magnet in this fashion, and the withdrawn energy will be continuously replaced at light speed from the active vacuum via the giant negentropy process {1, 26, 43}. In real systems, the materials and components will impose physical limits so that only a finite amount of excess energy flow can be accomplished, but in real materials these limits still permit system  $\text{COP} \gg 1.0$  {24}.

The foregoing discussion shows that, in a magnetic apparatus or process functioning as part of an overall electromagnetic power system, we may have one subprocess which continuously withdraws energy from the curled portion of  $\mathbf{A}$  (i.e., holds and localizes the magnetic field  $\mathbf{B}$  and confines it to a given path), and in that case the source (in this case the permanent magnet) of the  $\mathbf{A}$ -potential will simply replenish—at light speed—all the  $\mathbf{A}$  energy that was withdrawn and localized. The replenished  $\mathbf{A}$  energy will not be localized, since under a given set of conditions only so much energy is withdrawn and held in the localized condition.

The principle is that, as energy is drawn from the vector potential and then contained and circulated in field form in a localized material region or path, the withdrawn  $\mathbf{A}$ -potential energy in space outside that localized path is continually replenished from the permanent magnet dipolarity to the space surrounding the localized  $\mathbf{B}$ -field energy path as the real EM energy flow output of the giant negentropy process {26, 43} engendered by the magnet dipole. Further, the energy drawn from the permanent magnet dipolarity is continually replenished from the surrounding vacuum by the input EM energy flow to the magnet dipolarity from the vacuum's complex plane in the ongoing giant negentropy process {1, 26, 43}.

### **Regauging Can Be Negentropic**

Any increase of energy in the apparatus and process in the local spacetime constitutes (a) self-regauging by the process, whereby the process freely increases the potential energy of the system utilizing the process, and (b) concomitant curvature of spacetime and increase in that spacetime curvature due to the increase of local energy in the system process.

From the standpoint of gauge field theory, free asymmetrical regauging is permitted by gauge freedom and is rigorously allowed, in effect allowing the violation of classical equilibrium thermodynamics because the regauged system freely receives EM energy from an external active source, the active vacuum's complex plane in the evoked giant negentropy process.<sup>11</sup> From the standpoint of general relativity, the excess energy from spacetime is freely allowed, since all EM energy moves in curved spacetime {36, 39, 40, 41, 42, 45, 46} *a priori*, and simple conservation of EM energy as usually stated in classical equilibrium electrodynamics need not apply {47, 48} in a general relativistic situation.

### **Use of a Nanocrystalline "Energy-Converting" Material**

A nanocrystalline material recently available on the commercial market was found and utilized in this process. When utilized as a closed flux path external to and closed upon the two poles of a permanent magnet, the special nanocrystalline material will contain all the  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy (curled potential energy) in the closed flux path containing the magnet itself, while the magnetic dipole of the permanent magnet continuously replenishes and maintains the

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<sup>11</sup> It may be that we are defining the causative mechanism for gauge freedom as being pure entropy or pure negentropy, but we defer to the advanced theoreticians to determine the truth or falsity of such a question. If one considers Whittaker's process {1} in either direction—i.e., energy freely entering 3-space from the time-domain, and energy freely entering the time-domain from 3-space—the conjecture may have some merit.

external circulation of field-free **A**-potential energy filling the space around the nanocrystalline closed flux path containing the withdrawn magnetic field energy.

This performance can in fact be measured, since magnetic field detectors detect no magnetic field surrounding the flux path (or even around the magnet in the flux path at an inch or two away from it), and yet coils placed in the spatial flux path outside the core interact with the field-free **A**-potential that is still there. A coil placed around the flux path so that the flux path constitutes its core, interacts both with the field-free **A**-potential outside the material flux path core, and simultaneously interacts—via the magnetic field inside the coil—with the magnetic field flux energy inside the core.

### **Dual Interactions with Ping-Ponging Between Them**

Further, the two simultaneous interactions also *iteratively* interact with each other, in a kind of iterative retroreflection and interception of additional energy, so that a net amplification of the electrical energy output by the dually interacting coil results. The fact that iterative retroreflection processes can increase the energy collection from a given potential and enable  $COP > 1.0$  has been previously pointed out {31}. In addition, multiple coils placed around the closed material flux path forming a common core of each and all of them, all exhibit such gains and also mutual interaction with each other, leading to further gain in the energy output by the coils and their interaction processes.

In short, the novel process of this invention takes advantage of the previously unknown giant negentropy process {1, 26, 43} ongoing to and from the permanent magnet's dipole and between the complex plane of the vacuum energy and real 3-space energy flows comprising the magnetic vector potential and the magnetostatic scalar potential, to provide a gain in the total amount of electromagnetic energy being diverted from (drawn from) the permanent magnet by the attached circuit, components, and their processes.

The total collectable energy now drawn from the magnet is the sum of (a) the magnetic field energy (curled **A**-potential energy) flowing in the flux path, (b) the magnetic energy in the uncurled **A**-potential energy flowing in the surrounding space, and (c) a further iterative "ping pong" gain component of energy caused by mutual and iterative interactions {31} of the multiple coils and their multiply interacting processes. Further, (d) additional energy can be intercepted and diverged (collected) from the flowing uncurled **A**-potential energy flowing in the surrounding space, and converted into output electrical energy as the outputs of coils, by simply adding additional interceptors (such as coils, for example, or spinning charges, etc.).

We have thus discovered a process for amplifying the circuit's *available* output energy extracted from a permanent magnet dipole's energy outflow, where the dipolarity is an open system and a negative resistor, freely receiving excess energy from the surrounding active vacuum, transducing the received energy into usable form, and outputting the energy as a continuous flow of usable excess electromagnetic energy. Thereby, additional energy may be intercepted in a system employing this process, and the process can be used in practical EM power systems and EM power system processes having  $COP > 1.0$  when used in open-loop mode, and self-powering when used in closed-loop mode.

Further, we may utilize a collector/interceptor (such as a common coil wound around the flux path through it so that said flux path constitutes a core) which interacts with both available components of energy flow and with iterative interactions mutually between the two basic interactions. Each turn of the coil constitutes a  $\nabla \times$  operator, bathed by the flowing uncurled **A**-potential outside the line material. Hence the charges in the coil intercept the uncurled **A**-flow, and curl the energy intercepted to produce a curled **A**-flow, thus producing additional magnetic field  $\mathbf{B} = \nabla \times \mathbf{A}$ . This magnetic field is at its maximum in the exact center of the coil, which is in the exact center of the nanocrystalline core material with its retained  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy. Hence the coil interacts with two components of energy flow, being (1) the internal  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy retained in the nanocrystalline material in the coil's core, and (2) the external uncurled **A**-potential energy flow striking its outside surface charges and changed into additional magnetic field energy and into additional electrical current flowing in the coil and out of it. In addition, (3) iterative mutual interaction between the two basic interactions also occurs, increasing the energy gain and the coefficient of performance.

Any additional EM energy input into the core material and flux path increases the  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy flowing in the flux path, hence withdrawn from the vector potential **A** around the flux path, hence replenished from the permanent magnet dipole, and hence replenished to the magnet dipole from the complex plane, via the giant negentropy process {26, 43}. This increased energy collection in the magnetic flux in the core material passes back through the permanent magnet (which is in the path loop and completes it), altering the effective pole strength of the magnet and thereby increasing the magnitude of the giant negentropy process associated with said dipole of the permanent magnet. In turn, this increases the outflow of **A**-energy from the magnetic dipole, increasing both its output  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy in the flux path and its output uncurled **A**-flow energy in space outside the flux path. This further increases the spacetime curvature of the local space surrounding the flux path material, since the energy density of said local spacetime has increased.

### **Varying the Pole Strength of a Permanent Magnet**

Hence the process is the first known process that deliberately and interactively alters the pole-strengths of the poles of a permanent magnet, utilizing said alteration to vary and increase the pole strength and hence the magnitude of the energy density flowing in the giant negentropy mechanism {26, 43}. From the general relativity view, it is the first known process that deliberately increases and structures the local curvature of spacetime, by electromagnetic means, so as to alter and increase the pole strength of a permanent magnet, using said pole strength alteration to increase the flow of energy into and out of the local spacetime, thereby increasing the curvature of said local spacetime and the resulting EM energy extracted therefrom.

Any extra uncurled **A**-flow energy increase outside the nanocrystalline flux path material, increases the interaction with this field-free **A**-flow energy of any coil around the flux path, thereby increasing the magnetic **B**-field flux inside the flux path, and so on.

### **Regenerative Energy Gain**

In short, the mutual iterative interaction of each coil wound on the flux path of the special nanocrystalline material, with and between the two energy flows, results in special kinds of regenerative energy feedback and energy feedforward, and regauging of the energy of the system and the energy of the system process. This excess energy in the system and in the system process is thus a form of free and asymmetrical self-regauging, permitted by the well known gauge freedom of quantum field theory. Further, the excess energy from the permanent magnet dipole is continually replenished from the active vacuum by the stated giant negentropy process {1, 26, 43} associated with the permanent magnet's magnetic dipole due to its broken 3-symmetry {16} in its energetic exchange with the vacuum.

As a result, each coil utilized is an amplifying coil containing an amplifying regenerative process, compared to a normal coil in a normal flux path which does not hold localized the  $\mathbf{B} = \nabla \times \mathbf{A}$  field energy within its core material, and does not simultaneously interact with both internal  $\mathbf{B}$ -field flux energy and external excess field-free  $\mathbf{A}$ -potential.

### **Open System Far from Equilibrium, Multiple Sub-processes, Curved Spacetime**

The entire system process is thus a self-regauging regenerative system process and an energy-amplifying system process, where the excess energy is freely furnished from the local curved spacetime as energy flows from the magnetic dipole of the permanent magnet, and in turn freely replenished to the permanent magnet dipole by the giant negentropy process established in the active vacuum environment by the broken 3-symmetry of said magnetic dipole {16} and the concomitant locally curved spacetime.

The system process is thus an open electromagnetic process far from thermodynamic equilibrium {17-19} in its active environment (the active vacuum), freely receiving excess energy from said active environment via the broken 3-equilibrium of the permanent magnet dipole. In each coil, the coil is an open system freely receiving excess energy from its active environment (the active field-free  $\mathbf{A}$ -potential flowing through the space occupied by the coil and surrounding it, and creating a local curved spacetime by its extra energy density, while also receiving energy from its internal environment, the  $\mathbf{B}$ -field magnetic flux in the material flux path through the center of the coil and comprising its core, and also curving the local spacetime by means of the extra energy density of the local spacetime.

The system process is also a general relativistic process {38-42, 45, 46} whereby electromagnetic energy is utilized to curve local spacetime, and then the locally curved spacetime continuously acts back upon the system and process by furnishing excess energy to the system and process directly from the curved spacetime, with the excess energy being continually input to the system from the imaginary plane (time domain) {1, 26, 43}.

## **SUMMARY OF THE PROCESS FROM VARIOUS ASPECTS**

We summarize the many aspects of the overall process as follows: Advantage is taken of the fact that:

1. The magnetic flux and magnetic vector potential  $\mathbf{A}$  are freely and continuously furnished by a permanent magnet to a material flux path, and where the material flux path holds all curled vector potential  $\mathbf{A}$  and thus all magnetic field inside the flux path, and where the permanent magnet freely furnishes additional field-free magnetic vector potential  $\mathbf{A}$  to replenish the  $\mathbf{B}$ -field (curled magnetic vector potential  $\mathbf{A}$ ) energy that was confined to the interior of the material flux path, and where multiple intercepting coils and processes are utilized with mutual iterative positive feedforward and positive feedback between the collectors and subprocesses to increase the energy collected and hence increase the COP of the system and system process.
2. A previously unrecognized giant negentropy mechanism is used as shown unwittingly by Whittaker {1} in 1903 but unrecognized until recently understood by Bearden {26} and further clarified by Evans and Bearden {43}, and the active vacuum continuously replenishes all magnetic vector potential  $\mathbf{A}$  (both curled and field-free) that is continuously output by the permanent magnet into the material flux path and into space surrounding the material flux path. Further, the replenishment energy flow from the active vacuum is from the time-domain {1, 26, 43} and thus from the complex plane, constituting the continuous input of reactive power by the active vacuum environment via time-like energy flows. These time-like potentials and energy flows are known in extended electrodynamics {29, 30, 32, 33, 35, 36, 38, 39, 41} but have not previously been deliberately utilized in electromagnetic systems and particularly in electromagnetic power systems, even though shown by Whittaker {1} as early as 1903.
3. The field-free magnetic vector potential  $\mathbf{A}$  is continually replenished and remaining (due to replenishment by the vacuum to the permanent magnet dipole and thence replenished from the magnet dipole to the space surrounding the material flux path) when a material flux path is utilized wherein the magnetic field associated with a permanent magnet's flux, through the flux path, is held internally and entirely in the material flux path, with the field-free magnetic vector potential  $\mathbf{A}$  remaining in space surrounding the flux path.
4. A coil will interact with either a magnetic field (i.e., it will interact with the curl of the  $\mathbf{A}$ -potential which curl is a magnetic field), or an  $\mathbf{A}$ -potential where no magnetic field is present, or simultaneously with a combination of both a curled  $\mathbf{A}$ -potential (with magnetic field  $\mathbf{B}$ ) and a field-free  $\mathbf{A}$ -potential (without magnetic field  $\mathbf{B}$ ). Indeed, there is a "ping pong" reiterative interaction between the two processes, constituting positive feedforward from each to the other, and positive feedback from each to the other.
5. A simultaneous interaction of a coil with both a magnetic field (curl of  $\mathbf{A}$ ) and a field-free  $\mathbf{A}$  potential produces electromagnetic energy in the form of voltage and current in an external circuit connected to the coil, and the net voltage and amperage (power) produced by the coil is a result of the summation of both simultaneous interactions with said coil and its Drude electrons and of the iterative "ping-pong" interactions between the two simultaneous interactions, and therefore the summation provides a greater coil output energy than is produced by the coil

from either the magnetic field (curled  $\mathbf{A}$ ) separately or the field-free  $\mathbf{A}$ -potential separately. Further, the "ping-pong" iterative interaction adds additional energy collection and gain to the electrical power output of the coil.

6. Multiple coils are wound on the material flux path, where magnetic flux is input to the material flux path from a permanent magnet, and where the material flux path holds internally all curl of  $\mathbf{A}$  (magnetic field) from the permanent magnet's flux, so that magnetic field and magnetic flux from the permanent magnet are inside the closed material flux path, and so that no magnetic field is outside the closed material flux path, and so that a field-free magnetic vector potential  $\mathbf{A}$  replenishes the curled  $\mathbf{A}$ -potential held in the material flux path, and where the replenished field-free magnetic vector potential  $\mathbf{A}$  occupies the space outside the material flux path and flows through the surrounding space.

7. A broken 3-space symmetry exists of a magnetic dipole {16} of a permanent magnet, well-known in particle physics since 1957 but inexplicably not yet added into classical electrodynamics theory, wherein the broken symmetry of the magnetic dipole rigorously requires that the dipole continually absorb magnetic energy from the active vacuum in unusable form, and requires that the broken symmetry output (re-emit) the magnetic energy in usable form as real magnetic field energy in 3-space and real magnetic vector potential in 3-space. And where the receipt of unusable EM energy, transduction into usable form, and output of the usable EM energy, constitutes a true negative resistance process {26, 43} resulting from the ongoing giant negentropy process {26, 43} engendered by the broken symmetry of the magnetic dipole of the permanent magnet.

8. Whittaker's 1903 mathematical decomposition {1} of any scalar potential applies Whittaker decomposition to the magnetostatic scalar potential existing between the poles of the permanent magnet, revealing that the magnetostatic scalar potential of the permanent magnet is comprised of a set of harmonic longitudinal EM wavepairs, where each wavepair consists of a longitudinal EM wave and its phase conjugate replica wave.

9. The incoming half-set of Whittaker decomposition waves consists of the phase conjugate waves, which are all in the imaginary plane {26, 43} and continuously converging upon the magnetic charges of the permanent magnet dipole at the speed of light. The incoming, converging longitudinal EM waves are continuously absorbed from the imaginary plane by the magnetic charges (magnetic poles), so that the permanent magnet dipole is continuously replenished with time-like energy flow from the active vacuum environment, while continuously transducing the received time-like energy into 3-spatial energy, and outpouring real EM energy flow in the form of the longitudinal EM Whittaker waves {1} emitted in 3-space in all directions.

10. The other half-set of the Whittaker decomposition waves, consisting of outgoing real EM Whittaker longitudinal waves {1} in 3-space, is continuously and freely emitted from the permanent magnet dipole charges (poles) and continuously diverges outward in space in all directions from the permanent magnet dipole at the speed of light. Thus there is revealed and used a process for a natural, continuous source of magnetic energy from the vacuum: a continuous EM wave energy flow convergence of electromagnetic energy from the vacuum to the magnetic dipole, but in the imaginary plane and hence constituting a continuous energy input in the form of imaginary power {26, 43}, with the absorbed magnetic energy being transduced



into real power and re-emitted in real 3-space in all directions, whereby the absorption of energy from the vacuum from the imaginary plane (time domain) is in 4-flow equilibrium with the re-emission of the absorbed energy in 3-space, but not in 3-flow equilibrium, and where the outgoing real magnetic energy provides the surrounding magnetic field and the surrounding magnetic vector potential of the permanent magnetic dipole.

11. In this manner the broken 3-symmetry of the magnetic dipole (permanent magnet) allows the dipole to continuously receive reactive power from the vacuum's time domain, transduce the reactive power into real EM power in 3-space, and re-emit the absorbed energy as real magnetic energy pouring into space and consisting of both a magnetic field and a magnetic vector potential. Thus the permanent magnet, together with its Whittaker-decomposed {1} magnetostatic scalar potential between its poles, represents a dynamo and an energy transducer, continuously and freely receiving energy from an external source (the active vacuum) in the complex plane and transducing the received complex plane EM energy into real EM energy {26, 43}, and radiating the real EM energy into real space as real EM power. EM energy flow conservation in 3-space is permissibly violated due to the broken 3-symmetry of the magnetic dipole, but EM energy flow in 4-space is not violated and is rigorously conserved. There is no law of nature which requires energy conservation in three dimensions and 3-space; instead, energy conservation is required by the laws of nature and physics in 4-space. The additional condition usually assumed—that energy conservation is *also* always conserved in 3-space—is not required by nature, by physics, or by thermodynamics, and the additional 3-conservation requirement is removed by this process in any dipole, by the broken 3-symmetry of the dipole. It is this newly recognized giant negentropy process advanced by Bearden {26} and extended by Evans and Bearden {43} which is directly utilized by this new power system process, in conjunction with directing and interacting material flux paths, intercepting coils, separation of curl of the **A**-potential (i.e., the **B**-field) and the field-free **A**-potential (replenished from the vacuum), and interaction of a coil with a magnetic field and magnetic flux running through a material core through the coil, and with an external field-free magnetic potential reacting with the coil. The foregoing actions provide a magnetic system which receives—via the permanent magnet dipole—replenishment EM energy from the active vacuum to the dipole, and from the dipole to the circuit and the space surrounding it, to enable the permanent magnet to continuously furnish magnetic field and flux to a flux path in the process, and continuously furnish both the curl energy of the **A**-potential and the field-free energy of the **A**-potential replenished from the vacuum, and to have multiple coils interacting simultaneously with both curled **A**-potential and magnetic flux inside the coils, while also interacting simultaneously with field-free magnetic **A**-potential from the space in which the coil is embedded, such that excess energy is added to the interacting coils from the field-free **A**-potential in space, and where the field-free **A**-potential in space is continuously furnished by the permanent magnet dipole, and where the extra energy for the furnished field-free **A**-potential is continuously received by the permanent magnet dipole from the active vacuum exchange, via the process shown by Whittaker's decomposition {1}.

12. The difficulty heretofore experienced by designers, engineers, and scientists with using the magnetic energy continuously emitted to form the static field and magnetic scalar potential of a permanent magnet dipole, is that all schemes for using the magnetic energy have

relied on physical motion, or the input of energy to overcome the field of the permanent magnet, or other brute force methods. This invention provides a new process for a coil to extract excess EM energy from the magnetic vector potential energy in space from the permanent magnet, while simultaneously interacting with the magnetic field energy of the permanent magnet flowing through a flux path through the center of the coil but not in space surrounding the flux path. The Whittaker decomposition shows that when the system extracts EM energy from the magnetic vector potential  $\mathbf{A}$  and magnetostatic scalar potential  $\phi$ , the energy to continuously form and maintain the magnetic vector potential's vector current is continuously replenished from the vacuum by the convergent reactive EM power being input from the imaginary plane (time domain). Evans and Bearden {43} have also shown that, in the most general form of the vector potential deduced from the Sachs unified field theory, electromagnetic energy from the vacuum is given by the quaternion-valued canonical energy-momentum. Further, the most general form of the vector potential—i.e., flowing EM energy in vector potential form—has been shown by Evans and Bearden {43} to contain *longitudinal and time-like components (energy currents)*, in agreement with the simpler Whittaker decomposition {1} as a special case, but much richer in available structure than Whittaker's decomposition. Evans and Bearden {43} have also shown that the scalar potential is in general a part of the quaternion-valued vector potential, and can be defined only through suitable choice of metric for a given experimental setup. They have shown the energy current in vacuum in this more advanced treatment in  $O(3)$  electrodynamics, and it is this demonstrated vacuum EM energy current which continuously replenishes any excess energy drawn from the permanent magnet dipole's magnetostatic scalar potential to replenish the curl of the  $\mathbf{A}$ -potential (the magnetic  $\mathbf{B}$ -field energy) held inside the material flux path powered by the magnet and also to replenish the field-free  $\mathbf{A}$ -potential filling space around the material flux path.

13. A special nanocrystalline material comprises the closed flux path powered by the permanent magnet, where the nanocrystalline material performs the highly special function of separating and retaining the curl energy of the  $\mathbf{A}$ -potential (i.e., retaining the magnetic field energy) inside the material flux path along with the magnetic flux. The nanocrystalline material consists of coiled flat "tape" layers of material, with the layers acting in the fashion of a perfect toroid to retain all magnetic field (curled  $\mathbf{A}$ -potential) inside the material, while having the curl-free  $\mathbf{A}$ -potential filling all space outside the nanocrystalline material.

14. This special nanocrystalline material may be further considered in the manner of a "layered" magnetic flux path material, wherein the "layers" are a molecule in thickness, and wherein essentially all eddy currents are eliminated or reduced to completely negligible magnitude, and wherein as a result the nanocrystalline material does not dissipate magnetic energy from the flux path, and wherein as a result said nanocrystalline material does not produce eddy currents, and wherein as a result the nanocrystalline material does not exhibit heating since heat is scattered and dissipated energy, and no such scattering or dissipating of the magnetic flux energy occurs in the nanocrystalline material. Thus the system process is able to process significant power and energy without heating of the core flux path material at all, and without requiring cooling of the core material, these being characteristics having a remarkable advantage over other core materials subject to eddy currents, substantial heating, and the need for cooling.

15. The magnetic flux from a permanent magnet provides a source of magnetic flux energy to and within the nanocrystalline material in a flux path, such that the nanocrystalline material holds the magnetic field component (curl energy of the vector potential  $\mathbf{A}$ ) in the flux path while the flux path material itself is not further interacting with the field-free magnetic vector potential and its energy that fill the space around the closed material flux path, and where the field-free magnetic vector potential—in space external to the material flux path—geometrically follows the directions and turns of the material flux path but outside it.

16. Any coil immersed in the nanocrystalline material's magnetic vector potential in space, but not wound around a portion of said nanocrystalline flux path, will react to the magnetic vector potential and its energy. Each turn of a coil acts as a curl-operator, producing a magnetic field due to the received energy current from the magnetic vector potential. If an electrical current is passed through the coil, and if the magnetic flux produced by the electrical current in the coil is aligned with the magnetic flux that is produced by the coil's interaction with the magnetic vector potential from the nanocrystalline flux path material, then the two magnetic vector potentials will vectorially add, so that the magnetic field produced by the current through the coil will be augmented due to the curl-operation of the coil now acting upon an increased magnetic vector potential summation consisting of the vector sum of the curled magnetic vector potential and the field-free magnetic vector potential.

17. Any time-rate of change of a magnetic vector potential, either curled or curl-free, constitutes an electric field, which in an interacting pulsed coil produces pulsed voltage across the coil and pulsed current through the coil, and which produces current and power in a closed circuit loop consisting of the interacting coil and a connected external circuit. The excess magnetic energy is received by the circuit from the magnetic dipole of the permanent magnet (and replenished to the dipole from the time-like Whittaker energy currents from the active vacuum). The process transduces the excess magnetic energy into excess electrical energy, and outputs the excess electrical energy into electrical loads to power them, whereby the excess energy received and replenished from the active vacuum environment via the giant negentropy process of the permanent magnet dipole {26, 43} allows system COP to be greater than 1.0.

18. Further, with  $\text{COP} > 1.0$ , a fraction of the output electrical energy from the process and system can be extracted and positively fed back to the operator input of the system and process (such as the electrical energy fed to a driver coil), with governing and clamping control of the positive feedback energy magnitude, so that the system process becomes a self-powering process freely powering itself and its loads, receiving all the energy from an external energy source due to its broken symmetry in its vacuum exchange and the resulting giant negentropy process (26, 43) thereof, and thus constituting an open system far from thermodynamic equilibrium with its active environment, freely self-regauging and powering itself and its load simultaneously by dissipation of energy freely received from its active environment.

19. The dual-action effect is increased in an interacting coil if the coil is wound around a portion of the nanocrystalline flux path, due to the permeability of the flux path as a magnetic core and the input of flux from the permanent magnet. In this case, the increased magnetic field produced inside the coil also interacts with the magnetic flux path core in its center, producing an increased change in the magnetic flux in the nanocrystalline material itself.

The coil interacting in such dual fashion thus has *iterative* "energy feedforward and feedback" between the two simultaneous processes, one process proceeding outward from inside, and the other proceeding inward from outside. A convergent series of summing energy additions (regaugings) thereby occurs in the coil, thus producing *energy amplification* in the coil.

20. The combined aforementioned actions result in the coil increasing its energy output due to receiving and transducing extra energy from the magnetic flux of the permanent magnet, the magnetic field of the permanent magnet, and an extra field-free magnetic potential  $\mathbf{A}$  surrounding the flux path and continuously furnished by the permanent magnet. The production of one or more potentials is also the production of one or more regaugings. As is well-known from electrodynamics and from gauge field theory, gauge freedom is permitted freely and at will. In electrodynamics, regauging to change the potential of a system simultaneously changes (freely) the potential energy of the system. In the present process, this regauging is physically applied by (1) holding the curl of the  $\mathbf{A}$ -potential inside the special nanocrystalline flux path material, (2) furnishing additional field-free magnetic vector potential  $\mathbf{A}$  from the permanent magnet dipole, (3) continuously replenishing the potential and energy from the vacuum.

21. This process provides for a permissible gain in the magnetic energy output of the interacting coil(s) for a given amount of energy input by the (a) operator to the active coil (used similar to a "primary" coil in a transmitter), or (b) a clamped, governed positive energy feedback of a fraction of the energy output from one output coil back to the input coil. This additional magnetic field energy output is retained in the nanocrystalline flux path, and the additional magnetic vector potential energy output moves through space surrounding the coil. The system process of the invention thus is a new process for energy amplification, with the excess output energy being freely received from the vacuum and thence to the permanent magnet dipole, and thence from the permanent magnet dipole to the other parts of the system, via the giant negentropy process associated with the magnet dipole as shown by Evans and Bearden {43} and by Whittaker {1}.

22. Multiple coils wound around the special nanocrystalline material fluxpath will each and all exhibit regauging energy gain by the fore-described processes, with the energy continuously replenished from the vacuum to the source dipole and from the source dipole to process, via the process shown by Whittaker decomposition.

23. Any scalar potential such as the magnetostatic scalar potential between the poles of a permanent magnet, is a continually-replenished energy flow process {1, 26}, so that any system utilizing the output flow from the permanent magnet dipole and containing such permanent magnet dipole, is an open system far from equilibrium in the replenishing vacuum flux, as shown by the Whittaker decomposition {1} and more precisely expanded by Evans and Bearden {43}.

24. The entropy of any open system in disequilibrium with its vacuum environment, is *a priori* less than the entropy of the same system in equilibrium, and in fact the entropy of such an open system cannot even be computed, as is stated by Lindsay and Margenau {20} and as is well-known in physics.

25. This process, producing an open system in disequilibrium with a recognized continuous source of energy {17-19, 26, 43}, is permitted to perform any or several or all of five functions: (1) self-order, (2) self-oscillate, (3) output more energy than the operator inputs (the excess energy is freely received from the active environment), (4) power itself and its loads and losses (all the energy is freely received from the active environment), and (5) exhibit negentropy. The process specified by this invention permits all five functions. For example, by extracting some of the output energy from an output section (coil) used in a system employing the process, and feeding the extracted energy back to the input section (coil), the energy gain of the system permits it to become self-oscillating and hence self-powering, while obeying energy conservation, the laws of physics, and the laws of thermodynamics.

26. Multiple feedforward and feedback sub-loops exist between the various parts of a complete flux path loop and **A**-potential flow loop, so that regenerative energy collection gains are developed in the various subprocesses of the overall process. The result is an overall feedback summation and overall feedforward summation, whereby the system process regauges itself with **A**-potential flow energy from the magnetic dipole, and the regauged energy is continuously replenished and received from the active vacuum via the stated giant negentropy process.

27. The system process consists of a magnetic negative resistor process, where energy is received freely in unusable form (pure reactive power from the time domain of the spacetime vacuum), transduced into usable form, and output in usable form as real EM energy flow in 3-space {1, 26, 43}.

28. The system process is a permissible local energy gain process and a self-regauging process, freely increasing the process's and system's potential energy and receiving the regauging energy from the active vacuum via the giant negentropy process {26, 43}, and freely collecting and dissipating the excess regauging potential energy in loads.

29. The system process may be open-looped where the operator inputs some electrical energy and the system outputs more electrical energy than input by the operator, the excess energy being freely received from the permanent magnet dipole and from the vacuum to it via the giant negentropy process {26, 43}, with process transductions of the various energy forms between magnetic form and electrical form.

30. The system process may be close-looped and "self-powering", where a portion of the amplified energy output is extracted, rigidly clamped in magnitude, and positively fed back to the input. This replaces the operator input entirely, with all energy input to the system process being received from the vacuum through the permanent magnet dipolarity's Whittaker decomposition and constituting direct system application of the stated giant negentropy process {26, 43}.

31. The system process is a magnetic regenerative gain process, outputting more energy than the operator himself inputs, with the excess energy received from the active vacuum via the broken 3-symmetry of the dipole which initiates and sustains the giant negentropy process {26, 43}, whereby EM energy continuously flows into the system from the complex plane (time domain), is transduced into usable magnetic energy in real 3-space, and is then

transduced into ordinary electrical energy by the system process, thereby powering both the system and the loads.

32. In an embodiment using the process, all coils exhibit energy gain and increased performance, as does the overall system. All coils are energy amplifying coils, each with gain in energy output greater than 1.0 compared to the same coil without simultaneous but separate exposure to and interaction with separate inputs of field-free magnetic potential and magnetic field, and without iterative positive feedback between the two simultaneous interactions.

33. For power system processes, the combined process requires using at least one primary (active) coil in dual interaction with iterative feedback between the duals, and one secondary (passive) coil in dual interaction with iterative feedback between the duals, both on a common nanocrystalline flux path. The resulting "minimum configuration" embodiment produces a power system that is an open thermodynamic system, not in equilibrium with its external environmental energy source: to wit, the continuous inflow of EM energy from the complex plane of the active vacuum into the permanent magnet dipole, and the continuous outflow of real magnetic energy from the permanent magnet dipole, with the holding of the magnetic field energy and magnetic flux energy inside the nanocrystalline material in the closed magnetic flux path, and with excess field-free magnetic vector potential filling the surrounding space, as continuously furnished by the permanent magnet dipole and continuously replenished to the dipole by the active vacuum due to the dipole's broken 3-symmetry in its vacuum energy exchange and the giant negentropy 4-space energy flow operation {26, 43} initiated thereby.

34. This process permissibly violates 3-symmetry energy conservation, but rigorously obeys 4-symmetry energy conservation and thus is a process which has not previously been applied in electrical power systems. The basic excess energy input is received from an unusual source: the complex plane (time domain) of the locally curved and active spacetime (vacuum), as shown by the Whittaker decomposition {1} of the permanent magnet's magnetostatic scalar potential between its poles, and as further demonstrated in several AIAS papers {39-41, 43}, and as recognized by Bearden {26} and investigated more deeply by Evans and Bearden {43}. The energy into the nanocrystalline flux path material is input directly from the permanent magnet as magnet flux energy. From its dual interaction with two magnetic energy components, the active (driving) coil produces increased magnetic field flux in its center and thus in its interaction with the magnetic flux path and the magnetic flux in the flux path, and also produces increased magnetic flux back through the permanent magnet dipole, thereby altering the pole-strength of the permanent magnet, and also produces increased field-free **A**-potential in space surrounding the permanent magnet and surrounding the nanocrystalline flux path, and flowing geometrically in the direction taken by the nanocrystalline flux path. From its dual interaction with two magnetic vector potentials as well as two magnetic field components superposed, the passive (driven) coil produces increased EM field energy in the form of current and voltage out of the coil and into any conveniently attached external load for dissipation in the load by conventional means.

35. The process in this invention uses and applies an open system process for receiving excess energy from an external source (the permanent magnet flux and the permanent magnet **A**-potentials), and since the permanent magnet flux and permanent magnet **A**-potentials

are continuously replenished from the vacuum via the broken 3-symmetry of the magnet dipolarity via its Whittaker decomposition {1}, the process is allowed to be adapted in systems to (a) produce  $COP > 1.0$ , and (b) be closed looped with clamped positive feedback from load output to input, so that the system powers itself and its load simultaneously.

36. The open system far from equilibrium process of this invention thus allows electromagnetic power systems to be developed that permissibly exhibit a coefficient of performance (COP) of  $COP > 1.0$ . It allows electromagnetic power systems to be developed that permissibly (a) power themselves and their loads and losses, (b) self-oscillate, and (c) exhibit negentropy.

37. No laws of physics or thermodynamics are violated in such open dissipative systems exhibiting increased efficiency, and conservation of energy laws are rigorously obeyed. Classical equilibrium thermodynamics does not apply and is permissibly violated. Instead, the thermodynamics of open systems far from thermodynamic equilibrium with their active environment—in this case the active environment—rigorously applies {17-19}.

38. This appears to be the first magnetic process deliberately utilizing and separating special energy flow processes—associated in a curved spacetime with the permanent magnet's dipolarity—to provide true magnetic energy amplification, receiving the excess energy freely from the permanent magnet dipole, with said energy being continually replenished to the dipole from the imaginary plane in spacetime by the giant negentropy process {26, 43}.

39. This appears to be the first power system process which in open-loop mode receives electrical energy input by the operator or outside normal source, wherein the electrical energy input is transduced into magnetic energy flows, and wherein curled **A**-potential flow (magnetic field energy flow) is separated from field-free **A**-potential flow, and where dual and iterative "ping-pong" interactions of feedforward and feedback of energy occur in each active component, and wherein the feedforward and feedback ping pong interactions create local energy gain in each active component, and wherein the magnetic potential energy of the system is self-regauged and increased (receiving the excess by giant negentropy replenishment from the active vacuum), and where the increased magnetic energy flow is then re-transduced into electrical energy and output to power loads, and wherein the output energy powering the loads is greater than the input energy provided by the operator.

40. The foregoing system functions as before described, wherein the system process positively feeds back a clamped fraction of its electrical output to its electrical input, resulting in a regenerative, energy-amplifying, self-regauging open system process which powers itself and its loads, the powering energy being freely received from the active vacuum curved spacetime via the giant negentropy process {1, 26, 43}.

41. The process therefore appears to be the first process for an electrical power system which permissibly violates electromagnetic energy conservation in 3-space, due to the use of the recognized and proven broken 3-symmetry of the dipole {16}, but while rigorously conserving electromagnetic energy in 4-space {26, 43}. It therefore appears to be the first electrical power system process which enables the use of a clamped positive feedback from output to input in an electrical power system having  $COP > 1.0$  so that the system



continuously receives all the energy—to power its loads and losses—from the magnetic energy flow of a permanent magnet, with the energy flow being continually replenished to the permanent magnet by the energy circulation from the imaginary plane (as absorbed reactive power) and transduced into real power output by the magnet's dipole, and with the freely received magnetic flux energy from the dipole being separated into field energy and magnetic vector potential energy.

42. This appears to be the first  $COP > 1.0$  electrical power system process that deliberately takes useful advantage of the fact that any amount of energy can be intercepted and collected from a potential, regardless of its magnitude, if sufficient intercepting charges (in this case, magnetic charges, or pole-strengths) are utilized. In this case, coils utilized around the special nanocrystalline core material interact with the field-free magnetic vector potential filling the space occupied by the electron spins in the Drude electron gas in the coils, while simultaneously the produced magnetic field in the coil due to its curl operation interacts with the localized magnetic field flux in the nanocrystalline flux path and core, and vice versa. In this way, effectively the energy interception and collection is multiplied beyond what is obtained by a coil with a core operating in normal magnetic field coupled to its magnetic vector potential in space.

43. This appears to be the first magnetic process that is a proven true negative resistance process, where "negative resistance process" is defined as a process whereby electromagnetic energy is continuously and freely received in unusable form, converted into usable form, and continuously output in usable form.

44. This appears to be the first power system process which deliberately uses energy to perform more than one joule of work per joule of energy, by transforming a given amount of energy into a different form, thereby performing work in the same amount upon a receiving medium while retaining the energy in its new form, then transforming that energy back into the first form again, thereby again performing work in the same amount upon the receiving medium again while retaining the energy back in its original form, and so on in "ping-pong" iterative fashion. The fraction of the energy that is retained from one transformation to the other determines the increase in energy of the medium receiving the work and thus being excited with kinetic energy, and thereby determines the energy gain of the power system in the multiplicity of such regenerative processes used in the system.

45. This appears to be the first magnetic process for EM power systems which deliberately creates and uses curved local spacetime to provide continuous energy and action upon the process's active components and subprocesses. Sachs' unified field model {44-46} as implemented by one of its important subsets— $O(3)$  electrodynamics per Evans {40} and Vigier—is implemented in the system to provide several specific local curvatures of spacetime, with excess energy being thereby regauged into the system and used to power loads, including a self-powering system which powers itself and its loads simultaneously, and also including an open-loop system wherein the operator inputs a little EM energy and obtains more EM energy being dissipated as work in the load.

## RELATED ART

There is believed to be no prior art in such true magnetic negative resistor processes for

- (1) utilizing curvatures of local spacetime to provide excess energy from spacetime input into the various active components of the system process,
- (2) receiving EM energy from the spacetime vacuum in unusable reactive power form,
- (3) having the permanent magnet dipole convert the received unusable EM energy into usable magnetic energy form,
- (4) splitting the magnetic energy output of the permanent magnet into separate magnetic field flux and both curled and uncurled magnetic vector potential current, each traveling in a different spatial pathway,
- (5) producing energy amplification by dual interaction of multiple simultaneous processes in a coil, with iterative feedforward and feedback between the simultaneous interactions,
- (6) producing driving and driven coils both in curved spacetime and with their magnetic flux inside a nanocrystalline core inside said coils and with a field-free magnetic vector potential in the space in which the coil is embedded, and
- (7) transducing the excess magnetic energy available for output, into electrical energy,
- (8) outputting the excess energy as ordinary electrical energy—consisting of voltage and current—to power circuits and loads,
- (9) permissibly exhibiting  $COP > 1.0$  while rigorously obeying energy conservation, the laws of physics, and the laws of thermodynamics, and
- (10) being operated in either open-loop or closed loop operation, whereby in open-loop the operator inputs a lesser EM energy than is dissipated in the load, or whereby in closed loop operation a fraction of the output energy is positively fed back into the input to power the system and system process, while the remainder of the energy is dissipated in the load to power it.
- (11) Using and applying the extended work-energy theorem for a replenishing potential environment.

This appears to be the first process to take advantage of the above listings of operations, functions, processes, and facts, whereby no heating or eddy current dissipation is produced in the cores of coils utilized in embodiments of the process, and whereby said process and embodiments output electrical power in loads without the need to cool the process components.

The closest *somewhat* related work would appear to be the several patents of Raymond C. Gelinis {52} in that these patents use the curl-free magnetic vector potential. All the Gelinis patents deal with communications and receivers and transmitters, have no application to electrical power systems, do not use additional EM energy extracted from a permanent magnet and replenished by the vacuum, do not use curved local spacetime, do not use the giant negentropy process, do not function as open systems far from equilibrium in their vacuum

exchange, do not use iterative "ping-pong" feedforward and feedback in their various components to achieve gain, do symmetrically regauge themselves so that their excitation discharge is symmetrical and not asymmetrical, do not function as negative resistors, are not self-powering, cannot produce  $COP > 1.0$ , cannot self-operate in closed-loop form, and can and do produce only  $COP < 1.0$ . They therefore have no application to the field of the present invention.

## DESCRIPTION OF THE FIGURES AND SYSTEM OPERATION.

The process in this invention is described in a description below and in the process gain block diagram cited below and attached as separate sheets, which are intended to be read in conjunction with the following set of drawings, which include (1) the background Lenz reactions, Poynting and Heaviside energy flow operations, Heaviside energy flow component, giant negentropy operation, Whittaker's decomposition of the scalar potential, and creation and use of curved local spacetime utilized in the invention, and (2) the principles, the functional block diagram, a physical laboratory test and phenomenology device, and the process operation of the invention as well as typical measurements of a laboratory proof-of-principle device.

Figure 1 graphically shows Whittaker's decomposition {1, 29, 30} of the scalar potential into a harmonic set of phase conjugate longitudinal EM wavepairs. The 3-symmetry of EM energy flow is broken {16, 26} by the dipolarity of the potential, and 4-symmetry in energy flow without 3-flow symmetry is implemented {1, 26}.

Figure 2 expresses this previously unexpected functioning of the scalar potential—or any dipolarity, including the magnetic dipole of a permanent magnet—as a true negative resistor {23}, receiving energy in unusable form, transducing it into usable form, and outputting it in usable form.

Figure 3 shows the startling ramifications of this previously unsuspected process: an ongoing, free, negentropic reordering of a fraction of the local vacuum energy {26}, spreading at the speed of light in all directions from the moment of formation of the dipole, and continuing as long as the dipole and its broken 3-symmetry exists. We have previously stated {22, 25} that the energy input to the shaft of a generator, and the chemical energy of the battery, have nothing to do with powering the external circuit connected to the battery or the generator. Other than dissipation in internal losses, the available internal energy dissipated by the generator or battery does not add a single joule/sec of energy flow to the external circuit. Instead, the available internal energy is dissipated internally and only to force the internal charges apart, forming the internal source dipole connected to the terminals. The input energy to a generator and expended by it, and the chemical energy available by a battery and expended by it, thus are expended only to continuously reform the source dipole that the closed current loop circuit continuously destroys.

Once established, the source dipole applies the giant negentropy process {26, 43} shown in Figures 1, 2, and 3. Energy is continuously received by the dipole charges from the surrounding active and negentropically reordered vacuum (curved spacetime), transduced into usable form, and output as real EM energy flow in 3-space. The receipt of this energy as reactive power freely received from the vacuum, does not yet appear in present classical electrodynamics

texts, which texts do not include the vacuum interaction, much less the broken symmetry of the source dipole in that vacuum exchange, even though such has been proven in particle physics since the 1950s. The present invention is believed to be the first applied process using this previously omitted process of easily extracting energy from the vacuum and outputting it in usable transduced form as real EM energy flow, via the giant negentropy process {26, 43}.

The transduced EM energy received from the vacuum by the source dipole, pours out of the terminals of the battery or generator and out through space surrounding the transmissions lines and circuits connected to the terminals (Figure 4) as shown by Kraus {53}. As is well-known, the energy flow (Figure 4) fills all space surrounding the external circuit conductors out to an infinite lateral radius away {53}. This is an *enormous* EM energy flow—when one includes the space-filling nondiverged component discovered by Heaviside {10, 11}. This neglected vast nonintercepted, nondiverged energy flow component was never even considered by Poynting {9}, and was arbitrarily discarded by Lorentz {51} as "of no physical significance".

Figure 5 shows that almost all that great EM energy flow pouring out of the terminals of the generator or battery and out through the surrounding space surrounding the transmission line conductors, misses the circuit entirely and is just wasted in conventional circuits having no iterative feedback and feedforward additional collection components and processes. In a simple circuit, for example, the arbitrarily discarded Heaviside nondiverged energy flow component may be some 10 trillion times in total rate of energy flow as the feeble Poynting component {9} that is intercepted by the surface charges in the circuit conductors and components, and diverged into the wires to power the Drude electrons and the loads and losses.

Figure 6 illustrates the negative resistor process diagrammatically. The source dipole and the associated scalar potential between its poles act as a true negative resistor, receiving enormous EM energy from the surrounding vacuum in unusable form (via the giant negentropy process shown in Figure 3). The charges of the dipole absorb this unusable energy and transduce it into usable EM energy form, then re-radiate it as usable EM energy. This of course is precisely a negative resistor process.

Figure 7 shows the integration trick which Lorentz originated to discard the perplexing and enormous Heaviside non-diverged energy flow component, while retaining the diverged (Poynting) energy flow component. In short, Lorentz's procedure—still utilized by electrodynamicists to discard the embarrassing richness of EM energy poured out of every dipole and not intercepted and used by the attached external circuit—for over a century has specifically and ubiquitously diverted electrodynamicists' attention away from the process described in this invention.

We strongly iterate the following point: We have designed the process of this invention and its embodiments by and in accord with Sachs' unified field theory and the Evans-Vigier O(3) electrodynamics subset of it. Consequently, all energy in mass-free spacetime is general relativistic in nature, modeling, and interpretation. The general relativity interpretation applies at all times, including for the electrodynamics. Hence any local delta energy in spacetime is precisely of one and only one nature: a curvature of that local spacetime. A traveling EM wave thus becomes identically a traveling oscillation of a specialized curvature of spacetime. Further, wherever the wave exists, its energy *a priori* curves that part of the spacetime. So EM waves,

fields, potentials, and energy flows always involve and identically are spacetime curvatures, structures, and dynamics. We also accent that time is always part of it, since what exists prior to observation is spacetime, not space. Hence "energy currents in time" and "electromagnetic longitudinal waves in the time domain" are perfectly rational expressions and facts, albeit strange to the 136-year old classical electrodynamics stripped of its integration with general relativity.

Figure 8 shows the relationship between a linearly moving magnetic vector potential  $\mathbf{A}_L$ , a swirling or circulating  $\mathbf{A}_C$ , the implementation of the  $\nabla \times$  operator by the interacting coil and its moving charges, and the resulting magnetic field  $\mathbf{B}$ .  $\mathbf{A}_L$  can also be defined as the vector potential  $\mathbf{O}_L$  if desired, where  $\mathbf{O}_L$  is a vector potential and no longer the familiar scalar potential  $\phi$  since  $\mathbf{O}$  is in motion. If the coil is wound very tight and is very long (or closed such as in a very tight toroid), then the magnetic field  $\mathbf{B}$  will be retained entirely inside the coil, while the field-free (curl-free)  $\mathbf{A}_C$  will remain outside the coil. This illustrates one of the major unrecognized principles of the potential (such as  $\mathbf{A}$ ) being a flow process: What is usually considered to be the energy in the potential in a given volume of space, is actually the "reaction cross section" of the potential in that volume. Conventional electrodynamicists and electrical engineers do not calculate magnitudes of either fields or potentials, but only their *reaction cross sections*, usually for a unit point static charge assumed fixed at each point. We point out that this procedure calculates the divergence of energy from the potential, and hence the reaction cross section of the potential, but not the potential itself.

The energy so calculated—in this case, the curl of the  $\mathbf{A}$  flow, being the magnetic field  $\mathbf{B}$ —can in fact be diverted from the  $\mathbf{A}$  potential flow through a volume of space into another different volume of space. The magnitude of the  $\mathbf{A}$  potential flow will continue undiminished through the original volume of space, so long as the source dipole performing the giant negentropy process and thus providing the continuous EM energy flow represented by  $\mathbf{A}$  remain unchanged. In the case used in the process of this invention, we diverge the magnetic field energy from the  $\mathbf{A}$ -flow, while simultaneously retaining all the  $\mathbf{A}$ -potential energy flowing through the space outside the tightly wound coil. This is in fact an "energy collecting amplification" subprocess, and is no more mysterious than diverting a tiny flow of water from a nearly infinite river of flowing water, and having the river flow on apparently undiminished. In short, we may deliberately use the *energy flow nature* of the potential  $\mathbf{A}$  in order to simultaneously separate it into two flows of different energy form, curled and uncurled.

If we place a square pulse in the current of the coil in Figure 8, we also invoke the Lenz law reaction (Figure 9) to momentarily increase the current and hence the  $\mathbf{A}_C$  and the action of  $\nabla \times \mathbf{A}_C = \mathbf{B}$ , so that additional  $\mathbf{A}_C$  energy and additional  $\mathbf{B}$  energy are obtained. In this way, the energy gain is increased by the Lenz law effect—which is a regauging effect deliberately induced in the invention process by utilizing square pulse inputs. Then when the trailing edge of the pulse appears and sharply cuts off the pulse, a second Lenz law gain effect (Figure 9) is also produced, further increasing the energy gain in both  $\mathbf{A}_C$  and in  $\mathbf{B}$ . We use these two serial Lenz law effects to increase the potential energy of the system twice and also the collected field energy, thus allowing  $\text{COP} > 1.0$  since during the regauging process the potential and the potential energy of the system are both increased freely, and so is the diversion of the increased

potential energy into **B**-field energy inside the coil. Both the changes increase the voltage drop across the coil and the current through it, translating the increased magnetic energy into usable electrical energy to power loads and losses.

Figure 10 shows the cross section of an input coil, one form of input device. The input can be from a separate signal generator, in which case the system runs "open loop" and requires continuous input power, but still provides  $COP > 1.0$ . Or, a portion of the output power can be extracted, clamped in magnitude, and positively fed back to the input, in which case the system runs "closed loop" and the operator need furnish no external power input. In either case, the system is an open system far from thermodynamic equilibrium with its active vacuum environment, freely receiving energy from said active environment to the dipole in the permanent magnet, and from the dipole out into the nanocrystalline material core in the form of magnetic field energy **B**, and in the space outside the core in the form of field-free **A**-potential. As can be seen, the **B** field energy is confined to the core material inside the coil, and the **A**-potential outside the core is field-free **A**. Any change in the **B**-field inside the core, is also a change in the **B**-field inside the coil and the coil interacts with it to produce current and voltage. Any change in the **A**-potential outside the core, also interacts with the coil which applies the  $\nabla \times$  operator, thereby producing voltage and current in the coil and also producing additional **B**-field in the core material. In turn, this changes the **B**-field in the core, which produces more voltage and current in the coil and additional **A**-potential outside the coil, and so on. Hence there are dual iterative retroreflective interactions which increase the performance of the coil, making it an *energy amplifying* coil, and which also increase the COP of the system process. The output of the input coil is thus the alteration and increase of the **B**-field flux and energy in the core material, and an increase and alteration in the field-free **A**-potential surrounding the coil and moving around the circuit in the space surrounding the nanocrystalline core material flux path.

Figure 11 shows the cross section of a typical output coil for either open-loop or closed-loop operation. The operation is identical to the operation of the input coil, except this coil outputs energy in the form of voltage and current to an external circuit, external load, etc., and also outputs energy from its reaction with the **A**-potential outside the flux path to the nanocrystalline flux path material in its core. The output coil receives its energy input from the field-free **A**-potential outside the nanocrystalline material flux path as well as from the **B**-field energy and magnetic flux inside the nanocrystalline flux path through its core.

Further, the dual interaction processes and their mutual iterative interactions provide gain in both the **A**-potential energy outside the core material and the **B**-field energy and magnetic flux energy inside the core material.

Further, all coils on the core material thus serve as both output and input coils, and also have mutual iterative interactions with each other around the loop, coupled by the field-free external **A**-potential and the **B**-field and magnetic flux in the nanocrystalline material flux path acting as the cores of the coils. These interactions also provide gain in the kinetic energy produced in the Drude electron gas due to the iterative summation work performed upon the electrons to increase their energy.

Further, these mutual iterative feedback and feedforward energy gains also change the flux back through the permanent magnet, alternating it, so that the pole strength of the magnet

alternates and increases. This in turn increases the dipolarity of the permanent magnet, which in turn increases the magnitude of the associated giant negentropy process {26, 43}. In turn this results in more energy received from the active vacuum by the permanent magnet, and also more energy output by said permanent magnet dipole to the core material and to the coils.

Thus we have described a system and process having a multiplicity of iterative feedbacks and feedforwards from each component and subprocess, to every other component and subprocess, all increasing the energy collected in the system and furnished to the load. In open loop operation, this results in  $COP > 1.0$  permissibly, since the excess energy is freely received from an external source. In closed loop operation, the COP concept does not apply except with respect to operational efficiency. In that case, the operational efficiency is increased because more energy is obtained from the broken symmetry of the permanent dipole, and therefore additional energy is provided to the loads, compared to what the same permanent magnet can deliver when such iterative feedback and feedforward actions in such multiplicity are not utilized. In closed loop operation, the system powers itself and its loads and losses simultaneously, with all the energy being freely supplied by the giant negentropy process of the permanent magnet dipole and the iterative asymmetrical self-regauging processes performed in the process.

Figure 12 is another view showing the major energy flows in an output coil section and subprocess, and the iterative dual inputs and interactions, of the basic scheme of operation of the process and its active component subprocesses.

Figure 13 is another view showing the major energy flows in an input coil section and subprocess, and the iterative dual inputs and interactions, of the basic scheme of operation of the process and its active component subprocesses.

Figure 14 is a diagrammatic block-diagram illustration of the components and processes in the system and system process, with the dual feedforward and feedbacks shown. It accents the overall system process gain due to the multiplicity of interactions and iterative interactions between the various system components and subprocesses, and further interactions with the dual local interactions and iterative feedforwards and feedbacks, thus providing a multiplicity of individual energy gain process and an overall energy gain process.

Figure 15 shows a type embodiment of the system and system process, perhaps at a home and powering a variety of home appliances and loads. The system as shown is "jump-started" initially in open-loop mode, and once in stable operation is disconnected from the jump starter (such as a battery) to run in closed-loop operational mode.

Figure 16 shows one of the former laboratory test build-ups embodying the process of the invention. This test prototype was used for proof-of-principle and phenomenology testing.

Figure 17 shows a simplified block diagram of a basic embodiment demonstrating the process. Many of these build-ups were built to test various core materials, observe phenomenology, etc. The "square C's" of the flux path halves right and left, as shown in this Figure 17, were actually made as "half-circle C-shaped flux path halves" right and left in Figure 16 above.



Figure 18 shows the measurement of the input to the actuator coil of the test unit of Figure 16 operated in open-loop mode.

Figure 19 shows the measurement of the output of one of the output coils of the test unit of Figure 16 operated in open-loop mode.

Figure 20 shows the output power in watts as a function of the input potential in volts, thus indicating the output versus potentialization sensitivity. The circles indicate actual measurements, and the curve has been curve-fitted to them.

Figure 21 shows the COP of a single output coil's power divided by the input power, as a function of input potentialization. The circles indicate actual measurements, and the curve has been curve-fitted to them. The second coil had the same power output and COP simultaneously, so the net unit COP of the unit is double what is shown in the figure.

Figure 22 shows the projected unit output power sensitivity versus voltage input, expected for the next prototype build-up now in progress.

Figure 23 shows the projected unit COP versus input potentialization, expected for the next prototype build-up now in progress. We expect this type of unit to easily operate at the  $COP = 30$  or  $COP = 40$  level, with multiple kilowatt output power.

## **RAMIFICATIONS**

### **Importance of the Process and Its Sub-Processes**

A process has been provided whereby useful electromagnetic energy may be extracted from the dipole of a permanent magnet, via the giant negentropy process {26, 43} associated with the magnetic dipole. In that process, an outflow of EM energy is continuously furnished by the magnet dipole in all directions in 3-space, and the energy to the dipole is freely furnished from the time-domain of the active vacuum {1, 26, 43}. Whittaker {1} unwittingly showed this giant negentropy mechanism in 1903, but failed to recognize its implications. Recent recognition of the mechanism and its implications for electrical power systems was accomplished by one of the inventors, Bearden {26} and then more deeply examined by Evans and Bearden {43}.

By using the principle that essentially unlimited energy can be withdrawn from (collected from) a potential, and the withdrawn energy will be replaced by the potential's negative resistor action using the giant negentropy mechanism {1, 26, 43}, a practical approach to free energy sources for self-powering and  $COP > 1.0$  electrical power systems anywhere in the universe is provided.

By using the principle that iterative transformation of its form energy in a replenishing potential environment can be repeatedly reused to do work, so long as the form of the energy resulting at the completion of each work phase is retained and reprocessed, one joule of energy can be utilized to do many joules of work, as precisely permitted by the conservation of energy law with regauging. This is a major change to the work-energy theorem of electrodynamics, which implicitly has assumed only a single change of form of the energy, followed by loss (escape from the system) of all the energy in the new form. In short, *the present work-energy*

*theorem is only a special case valid under those assumed special conditions.* The invented process takes advantage of the extended work-energy theorem where one joule of energy—accompanied by retention of the new form of energy resulting from work—can do multiple joules of work in a replenishing potential environment.

By using the principle that one joule in "iterative form changing mode with retention" can do many joules of work upon a component of a system—to wit, upon the Drude electron gas in an electrical circuit, where the potential energy is increased by the increased kinetic energy of the electrons having the work done upon them—the extended work-energy theorem can be utilized to overpotentialize the receiving Drude electron gas, thereby regauging the system to add excess energy by gauge freedom and outputting more electrical energy to the load than is input to the system by the operator.

By then dissipating in loads this excess energy collected in the Drude electron gas in the output circuit, the invented process provides greater energy to be dissipated in the load than is input by the operator. The combination of processes thus allows an electromagnetic system freely functioning as an open system not in equilibrium with its active vacuum (due to the giant negentropy mechanism {26, 43}), hence permitted to exhibit  $COP > 1.0$ . In this way, more work output can be accomplished by the system process than the work that the operator must perform upon the system to operate it.

By using the principle of governed, clamped positive feedback of a portion of the increased output back to the input, the system can be close-looped and can power itself and its load, with all the energy being furnished by self-regauging from the active vacuum as an external energy source, furnishing excess energy to the magnetic dipole's magnetostatic potential and associated magnetic vector potential, thereby replenishing energy withdrawn from said magnetic vector potential by the subprocesses in the overall system process.

One system operating in closed-loop mode can also have one fraction of its output devoted to "jump-starting" another such system in tandem, then switching the second system into self-powering closed-loop mode, then "jump-starting" another such system, which is then switched to self-powering, and so on. In that way, multiple systems can be "piggy-backed" so that an exceptionally large power system consisting of a group of such "piggy-backing" systems can be produced. In case of system failure, all can be started again in the same series, by furnishing only the initial small input required to jump-start the first system of the group. In this way, very large power systems such as necessary to power automobiles, trucks, ships, trains, etc. can be produced, and yet the back-up jump starting source—such as a storage battery—can be very small, e.g., a simple flashlight battery.

### **Implications for the Crisis in Oil Supplies Versus Energy Demands**

The implications are that a total revolution in transportation, electrical power systems, backup power systems, etc. is at hand. In the process, the electrical power is obtained freely and cleanly from the vacuum, from permanent magnet dipoles continuously replenished from the active vacuum via the giant negentropy process.

A more significant fraction of the electrical power system can thus be decentralized, and degradation in case of system failure will be graceful and local. Yet full use can still be made of the existing power grids and power systems. As an example, arrays of self-powering electrical heater systems can be developed and used to heat the boilers in many standard power systems, thereby stopping the burning of hydrocarbons in those plants, and drastically reducing the pollution of the biosphere and the lungs of living creatures including humans. This would allow a graceful phase-in of new, clean, self-powering electrical power systems, reduction of hydrocarbon combustion for commercial electricity production, ready increase in electrical power to meet increasing world demands even in poor nations and developing countries, while capitalizing and using much of the present very large "sunk costs" investments in present large power systems. The core material fabrication is labor-intensive, so it is made in developing nations where such jobs are sorely needed and greatly benefit both the people and the nation. The dramatically increased use of and demand for these materials would thus stimulate substantial economic growth in those nations by providing many more jobs.

The conversion of power systems and replacement in a fraction of them, can proceed at a very rapid pace, since production and scale-up of systems utilizing this system process can be very rapid because, except for the cores, all fabrication, parts, techniques, tooling, etc. are simple and standard and very economical.

Particularly at this time of oil crisis and particularly a shortage of refining facilities, a very rapid and permanent solution to the oil crisis and the rapidly increasing demand for electricity—and also much of the problem of the present pollution of the biosphere by combustion byproducts, and of the present global warming enhancement by the emitted CO<sub>2</sub> from the hydrocarbon combustion—can be solved cheaply, economically, and quickly.

The steady reduction and eventual near-elimination of hydrocarbon combustion in commercial power systems and transport, and dramatic reduction in nuclear fuel rod consumption, etc. will result in cleaner, cheaper, more easily maintained power systems and a reduction in the acreage required for these power systems.

The gradual decentralization and localization of a substantial fraction of the presently centralized power grid will eliminate a significant fraction of power transmission costs, thereby lowering the price of electrical energy to the consumers.

The scale-up weight-per-kilowatt of systems using this system process will be sufficiently low to enable rapid development of electrically powered transport media such as automobiles etc. These will have weight about the same as now, carry a small battery as a back-up "jump-starter", and will have very agile performance suitable for modern driving in heavy traffic. With fuel costs zeroed, the cost to the citizens of owning and operating vehicles will be reduced. Costs to the trucking industry, e.g., will be dramatically reduced, since fuel is a major cost item. In turn, since most goods are moved via the trucking industry, the lower transport costs will mean more economical sales prices of the goods. These are very powerful and beneficial economic advantages of the new process.

### **Some Specific Advantages**

The process allows electrical power systems having the following advantages:

1. The systems can have a high output power to weight ratio. Second generation equipment will have a very high output power to weight ratio.
2. The systems can be highly portable for mobile applications.
3. The size and output of the systems are easily scalable, and piggy-backing is simple.
4. The systems will be rugged and reliable for use in hostile environments where conventional generators would fail or be extremely difficult to sustain. The systems can easily be environmentally shielded.
5. The systems can function effectively in very wide operating temperature ranges and can be used where conventional batteries and fuel cells cannot function. As an example, it can power a resistance heater to keep its own immediate environment continuously warm. It can also power electrostatic or magnetic cooling devices to keep the unit and its immediate environment cool in higher temperature environments.
6. The system will have an extremely long life cycle and high reliability, allowing it to be placed where frequent maintenance is not possible.
7. The system uses no fuel or fuel transport, packaging, storage, and disposal systems and needs no intermediate refining facilities and operations. The resulting overhead and financial savings are vast and significant.
8. Use of the systems in a combined centralized and decentralized electrical power system provides survival of electric power and graceful degradation, rather than catastrophic collapse, of electrical power in the presence of damage and destruction. This is particularly important since the greatest threat to America is now the threat of terrorist attacks against our cities, or against our fuel supplies, electrical power grids, etc.
9. The systems produce no harmful emission, harmful or radioactive byproducts, hazardous wastes, or biospheric pollutants. As usage is phased in world wide, a significant reduction of environmental pollutants and hazardous wastes will result, as will a cleaner biosphere.
10. The systems can produce AC or DC power directly by simple electrical additions, and provide shaft power simultaneously. Frequency can be changed by frequency conversion.
11. Coupled with normal electric motors, the systems can provide attractive power system alternatives for automobiles, tractors, trucks, aircraft, boats, ships, submarines, trains, and other vehicles, again without exhaust emissions, pollutants or harmful waste products and without fuel costs.
12. The systems can be developed in small-system sizes, rugged and efficient, to replace the motors of hosts of small engine devices such as garden tractors, lawnmowers, power saws, leaf blowers, etc. which are presently recognized to be very significant biospheric polluters.

The above descriptions provide illustrations of some of the presently envisioned preferred embodiments of this invention.

### **Extension and Adaptation of the Process**

The process can be extended . For example, we have mentioned piggy-backing arrays of such systems for easily assembled, very large power plants.

As another example, conversion to furnish either DC or AC, or combinations of either, at whatever frequencies are required, is easily accomplished by standard conversion techniques and add-on systems.

As another example:

The process uses a multiplicity of positive energy feedforwards and feedbacks, and iterative change of the form of the energy between multiple states in a replenishing environment, to provide iterative gain by "ping-pong". As the number of feedback and feedforward operations are increased, it is possible to advance the system process into a region where the regenerative feeds produce an exponentially *increasing* curve of regauging energy and potential energy increase, with concomitant exponentially increasing curve of output energy. Material characteristics, saturation levels of cores, etc. provide "plateaus" where the exponentially rising output curve is leveled off and stabilized. By using spoiling and damping, such exponential increase in energy density of the system can be leveled off at specifically desired plateau regions, which can be easily adjusted at will, either manually or automatically in response to sensor inputs. By this means, these systems enable automatically self-regulating, self-adapting power grids and power systems, which automatically adjust their state and operation according to the exact needs and conditions, changes of these needs and conditions, etc. without impact upon supporting fuel, transport, refining, storage, etc. These "exponential but plateau-curtailed" systems are capable of producing very large power-per-pound levels, and sustaining them without overheating, limited only by the saturation level of the core materials. Such new adaptations of the fundamental system process of this invention can be developed in straightforward manner in the second generation.

The adaptations and alterations of the process are limited only by the ingenuity of the engineer and the particular needs of a given application. The process uses the laws of nature in a novel and extended manner, such as using one joule of input energy to cause many joules of output work to be done in the load. Many alternative subprocesses, embodiments, modifications and variations will be apparent to those skilled in the art of conventional electrical power systems and magneto-electric generators.

### **REFERENCES:**

1. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. Decomposes any scalar potential into a harmonic set of bidirectional EM longitudinal EM wavepairs, where each wavepair is comprised of a longitudinal EM wave and its phase conjugate replica wave. Dividing the

overall waveset into two half-sets, we have one half-set comprised of incoming longitudinal EM waves in the complex plane (the time domain) and a second half-set comprised of outgoing longitudinal EM waves in real 3-space. Hence the scalar potential represents a giant circulation of EM energy automatically established and maintained from the time-domain (complex plane) into the source dipole establishing the potential, with the absorbed complex energy being transduced and re-emitted by the dipole in all directions in 3-space as real longitudinal EM wave energy establishing the EM fields and potentials (and their energy) associated with the dipole.

2. "E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proc. Lond. Math. Soc., Series 2, Vol. 1, 1904, p. 367-372. The paper was published in 1904 and orally delivered in 1903. Shows that all EM fields, potentials, and waves are comprised of two scalar EM potential functions. Whittaker's method is well-known in the treatment of transverse electric and transverse magnetic modes of a cylindrical cavity or a waveguide. The Debye potentials and the Bromwich potentials are essentially radial components of the vector potentials of which Whittaker potentials are the real parts. Our further comment is that, since each of the scalar potentials used for the Whittaker functions has an internal Whittaker 1903 giant negentropic substructure and dynamics, then all present EM waves, fields, and potentials have—and are comprised of—vast internal longitudinal EM wave structures and dynamics.
3. P. Debye, Ann. Phys., Leipzig, Vol. 30, 1909, p. 57. Introduces a solution to Maxwell's equations in terms of two scalar potentials. These two scalar potentials are different from the two potentials utilized by E.T. Whittaker in 1904.
4. A. Nisbet, Physica, Vol. 21, 1955, p. 799. Extends the Whittaker and Debye two-potential solutions of Maxwell's equations to points within the source distribution. This is a full generalization of the vector superpotentials (for media of arbitrary properties, together with their relations to such scalar potentials as those of Debye.
5. W. H. McCrea, Proc. Roy. Soc. Lond. A, Vol. 240, 1957, p. 447. Gives the general properties in tensor form of superpotentials and their gauge transformations. His treatment is more concise than that of Nisbet, but entirely equivalent when translated into ordinary spacetime coordinates.
6. Melba Phillips, "Classical Electrodynamics," in Principles of Electrodynamics and Relativity, Vol. IV of Encyclopedia of Physics, edited by S. Flugge, Springer-Verlag, 1962. An excellent overview of superpotential theory.
7. J. D. Jackson, Classical Electrodynamics, Second Edition, Wiley, New York, 1975, p. 219-221; 811-812. In symmetrically regauging the Heaviside-Maxwell equations, electrodynamicists and gauge field theorists assume that the potential energy of any EM system can be freely changed at will (i.e., that the system can first be asymmetrically regauged, due to the principle of gauge freedom). The symmetrical regauging is actually two asymmetrical regaugings carefully chosen so that the net force field (emf)—available for excitation discharge of the excited system—is zero. In circuits, this means that the back emf (across the source dipole) is precisely equal and antiphased to the forward emf (across the

external circuit with its loads and losses). Jackson's book does not even address circuits, as he so states in J. D. Jackson, "Surface charges on circuit wires and resistors play three roles," American Journal of Physics, 64(7), July 1996, p. 855-870.

For operating EM systems, their initial potentialization (application of potential to the system to increase its potential energy available for further discharge) is asymmetrical *a priori* and universally used. Gauge field theory and its assumption of gauge freedom assures us of the validity of this theoretically work-free process of increasing the energy of the system. In real systems, a little switching cost etc. may be required, but minuscule in relation to the amount of extra potential energy that can be generated in the system at will.

As shown by Jackson 1975, for the conventional EM model electrodynamicists actually select only a subset of the Maxwellian systems and deliberately discard the remaining Maxwellian subset. Following Lorentz, the electrodynamicists arbitrarily select *two* asymmetrical regaugings but precisely such that none of the initial excess regauging energy—freely received in the system by its potentialization—can subsequently be dissipated to power loads without equally destroying the system potentialization represented by the source dipole. This inanity occurs because the *net force* is deliberately brought to zero, thus consisting of equal forward and back emfs—or mmfs in a magnetic circuit). This custom produces much simpler equations for that remaining *simpler* subset of Maxwellian systems which are in equilibrium in their exchange with the active vacuum during their dissipation of the free regauging energy.

Hence for more than a century it has been "customary" to *arbitrarily* discard all Maxwellian systems and subsystems which would *asymmetrically* regauge themselves during the discharge of their initial free excitation energy. This arbitrary, self-imposed condition is neither a law of nature nor a law of electrodynamics or thermodynamics. It is purely arbitrary.

It assumes that half the gauge freedom's excess potential energy be dissipated internally (against the source dipole's back emf) to destroy any further energetic activity of the system by destroying the source dipolarity (any excess potential on the system, and hence any excess potential energy).

The remaining half of the initial free gauge excitation energy is dissipated *usefully* in the system's external loads and losses. This means that the remaining half the excitation energy is dissipated *detrimentally* by the system to destroy its own energetic operation. Since any real system has losses, the net result is that *half* the gauge freedom potential energy of the excited system is used to destroy the source dipole itself and all potentialization of the system, and *less than half* is used to power the loads.

Since it requires as much additional energy to restore the source dipole as it required to destroy it, the operator then must furnish more energy to provide for continually restoring the dipole, than the system *permits* to be dissipated in the external loads.

The set of Maxwellian systems arbitrarily discarded by the ubiquitous Lorentz regauging are precisely those open dissipative Maxwellian systems not in thermodynamic equilibrium in their vacuum exchange. Those are precisely the Maxwellian systems which *do not* forcibly and symmetrically regauge themselves in accord with the Lorentz condition during their excitation discharge. Those *arbitrarily discarded* Maxwellian systems are thereby free



to dissipate their gauge freedom initial "free-excitation" energy primarily in the external loads and losses, with much less being dissipated in the source dipole to destroy it.

The performance of the *arbitrarily discarded* asymmetrically regauging Maxwellian systems is described by the thermodynamics of an open dissipative system not in equilibrium with its active environment, rather than by classical equilibrium thermodynamics. As is well-known in the thermodynamics of such systems (for which Prigogine received a Nobel Prize in 1977), such open dissipative systems—Maxwellian or otherwise—are permitted to (1) self-order, (2) self-oscillate or self-rotate, (3) output more energy (e.g., to do useful work) than the operator must input (the excess energy is freely received from the external environment, in this case the active vacuum), (4) power itself and its load(s) simultaneously (all the energy is freely received from the external environment, in this case the active vacuum), and (5) exhibit negentropy.

That our normal EM power systems do not exhibit  $COP > 1.0$  is purely a matter of the arbitrary design of the systems. They are all designed with closed current loop circuits, which can readily be shown to apply the Lorentz symmetrical regauging condition during their excitation discharge in the load. Hence all such systems—so long as the current in the loop is unitary (its charge carriers have the same  $m/q$  ratio)—can only exhibit  $COP < 1.0$  for a system with internal losses, or  $COP = 1.0$  for a superconductive system with no internal losses.

8. Editorial, "The transfer of energy," The Electrician, Vol. 27, July 10, 1891, p. 270-272. This editorial points out that Poynting himself gave Heaviside priority for discovering EM energy flow through space.
9. J. H. Poynting, "On the transfer of energy in the electromagnetic field," Phil. Trans. Roy. Soc. Lond., Vol. 175, Part II, 1885, p. 343-361. Poynting got the direction of the flow wrong, which was later corrected by Heaviside. Further, Poynting considered only that very minor component of energy flow surrounding the circuit that actually strikes the circuit and enters it to power it. The enormous additional energy flow which is present but misses the circuit entirely and is usually wasted, was not considered by Poynting at all.
10. Oliver Heaviside, "On the Forces, Stresses, and Fluxes of Energy in the Electromagnetic Field," Phil. Trans. Roy. Soc. Lond., 183A, 1893, p. 423-480. This followed previous publications several years earlier by Heaviside; e.g. in The Electrician, beginning in 1885. Here Heaviside also credits Poynting with first discovering EM energy flow in space.
11. Oliver Heaviside, Electrical Papers, Vol. 2, 1887, p. 94. Quoting: "*It [the energy transfer flow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire... . Prof. Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. The departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire.*"

12. Sir Horace Lamb, Hydrodynamics, 1879, p. 210. Quoting: *"There is an exact correspondence between the analytical relations above developed and certain formulae in Electro-magnetism... Hence, the vortex-filaments correspond to electric circuits, the strengths of the vortices to the strengths of the currents in these circuits, sources and sinks to positive and negative poles, and finally, fluid velocity to magnetic force."*
  
13. Y. Aharonov and D. Bohm, Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 485-491. Quoting, p. 485: *"...contrary to the conclusions of classical mechanics, there exist effects of potentials on charged particles, even in the region where all the fields (and therefore the forces on the particles) vanish."* Indeed, since the field is usually defined as the force per unit charge, then the field as defined does not exist until after the causative "field as a separate entity" interacts with a charged mass. Hence the field as defined is an effect, never the cause. Further, being an effect and an observable as defined, it does not exist in spacetime as such, since no observable does. *A priori*, any observable is the output (effect) of a  $\Delta t$  operation upon LLLT, yielding an LLL "frozen snapshot" at an instant in time, which snapshot itself does not exist in time but was only a 3-space fragment of what was existing in the ongoing interaction at that point in time. The field-free 4-potential, together with its structure and its dynamics, provides the *causes* existing in spacetime prior to their interaction with intermediaries to produce effects.
  
14. Ingram Bloch and Horace Crater, "Lorentz-Invariant Potentials and the Nonrelativistic Limit," American Journal of Physics, Vol. 49, No. 1, Jan. 1981. Quoting p. 67: *"[It is usually] "...assumed that the magnitude of potential energy is irrelevant, being arbitrary to the extent of an additive constant."* Our comment: Note that this "standard" assumption in classical electrodynamics is totally wrong, particularly when one considers (1) conservation of energy, and (2) gravitational effects. We have previously nominated this arbitrarily discarded extra potential energy as a solution to the "dark matter" problem in astrophysics, and as being responsible for the extra gravity holding together the arms of the distant spiral galaxies. See T. E. Bearden, "Dark Matter or Dark Energy?", Journal of New Energy, 4(4), Spring 2000, p. 4-11. This paper is also carried on U.S. Department of Energy website <http://www.ott.doe/electromagnetic/papersbooks.html>.
  
15. S. Olariu and I. Iovitzu Popescu, "The Quantum Effects of Electromagnetic Fluxes," Reviews of Modern Physics, 57(2), Apr. 1985, p. 339-436. Full discussion of the Aharonov-Bohm effect and hundreds of references. According to Nobelist Feynman, it required 25 years for quantum physicists to clearly face the Aharonov-Bohm issue of the primacy and separate action of the force-field-free potential. It has then required another equal period before physicists would accept it, even though it was experimentally demonstrated as early as 1960.
  
16. T. D. Lee., Particle Physics and Introduction to Field Theory, Harwood, New York, 1981. A discussion by Nobelist Lee of particle physics and its findings, including broken symmetry which includes the broken symmetry of a dipole. Quoting p. 184: *"... the discoveries made in 1957 established not only right-left asymmetry, but also the asymmetry of the positive and negative signs of electric charge. In the standard nomenclature, right-left asymmetry is*

referred to as *P* violation, or parity nonconservation. The asymmetry between opposite signs of electric charge is called *C* violation, or charge conjugation violation, or sometimes particle-antiparticle asymmetry." And again, p. 184: "Since non-observables imply symmetry, these discoveries of asymmetry must imply observables." Simply put, Lee has pointed out the rigorous basis for asserting that the arbitrarily assumed Lorentz symmetry of the Maxwellian system is broken by the source dipole—and in fact by any dipole. In turn, such broken symmetry in the dipole's energetic exchange with the active vacuum is thus well-known in particle physics, but still is not included at all in classical electrodynamics, particularly the models used to design and build EM power systems. The proven dipole broken symmetry rigorously means that part of the dipole's received virtual energy—continuously absorbed by the dipole charges from the active vacuum—is transduced into observable energy and re-emitted in real (observable) energy form. That this has been well-known in particle physics for nearly a half century, but is still missing from the classical EM model, is scientifically inexplicable and a foundations error of monumental magnitude. Once made, it is the *source dipole* that powers the circuit.

17. I. Prigogine, "Irreversibility as a symmetry-breaking process," *Nature*, Vol. 246, Nov. 9, 1973, p. 67-71. Quoting, p. 70: "*Entropy ...cannot in general be expressed in terms of observables such as temperature and density. This is only possible in the neighbourhood of equilibrium... It is only then that both entropy and entropy production acquire a macroscopic meaning.*" Prigogine received a Nobel Prize in 1977 for his contributions to the thermodynamics of open systems, particularly with respect to open dissipative systems. What he is pointing out here is that, where equilibrium (and hence symmetry) is broken, the usual presumption of entropy and entropic production have no macroscopic meaning. For such systems, the often encountered challenge on classical equilibrium thermodynamics grounds is a non sequitur, and merely reveals the scientific ignorance of the challenger. In short, such a challenger would decry the windmill in the wind, denying that it can turn without the operator cranking it, because classical equilibrium thermodynamics forbids it. However, the windmill turns happily in the wind, without operator input at all, and in total violation of equilibrium thermodynamics because the windmill is not in equilibrium with its active environment, the active atmosphere. At the same time the windmill completely complies with the thermodynamics of open systems far from equilibrium, and energy conservation is rigorously obeyed. The windmill can "power itself and its load" since all the energy to power the windmill and power the load comes from the energy freely input by the wind.

It is usually not realized that Maxwell's equations are purely hydrodynamic equations and fluid mechanics rigorously applies {12}. Anything a fluid system can do, a Maxwellian system is permitted to do, *a priori*. So "electrical energy winds" and "electrical windmills" are indeed permitted {1, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41} in the Maxwell-Heaviside model, prior to Lorentz's regauging of the equations to select only that subset of systems which can have no net "electrical energy wind" from the vacuum. Specifically, this arbitrary Lorentz symmetrical regauging—while indeed simplifying the resulting equations and making them much easier to solve—also arbitrarily discards all Maxwellian systems not in equilibrium with their active environment (the active vacuum). In

short, it chooses only those Maxwellian systems which never have any net "electrical energy wind from the vacuum". Putting it simply, it discards that entire set of Maxwellian systems which interact with energy winds in their surrounding active vacuum environment.

18. G. Nicolis and I. Prigogine, Exploring Complexity, Piper, Munich, 1987. A technical exposition of the thermodynamics of dissipative systems far from thermodynamic equilibrium.
19. Gregoire Nicolis, "Physics of far-from-equilibrium systems and self-organization," Chapter 11 in Paul Davies, Ed., The New Physics, Cambridge University Press, Cambridge, 1989, p. 316-347. A good overview of the thermodynamics of dissipative systems far from thermodynamic equilibrium.
20. Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover, NY, 1963, p. 217. When a system departs from equilibrium conditions, its entropy must *decrease*. Thus the energy of an open system not in equilibrium must always be greater than the energy of the same system when it is closed or in equilibrium, since the equilibrium state is the state of maximum entropy. Thus, broken 3-equilibrium is a broken 3-symmetry between the active vacuum and material systems, and it is a *negentropic* operation.
21. J. O'M Bockris, "Overpotential: a lacuna in scientific knowledge," Journal of Chemical Education, 48(6), June 1971, p. 352-358. Essentially *the overpotential is a shift in the Fermi level necessary to allow the electron in the electrode metal to have energies overlapping with vacant acceptor levels in molecules adjacent to the electrode in the solution*. It enables the transfer of electrons via quantum transfer (tunneling). Quoting p. 356: "*Unless a system exhibits an overpotential, there can be no net reaction.*" [Emphasis in original]. We point out that an overpotential is an advantageous regauging (free change) of the potential energy of the local region where the overpotential appears.
22. T. E. Bearden, "On Extracting Electromagnetic Energy from the Vacuum," IC-2000 Proceedings, St. Petersburg, Russia, 2000 (in press). This paper is also published on Department of Energy website <http://www.ott.doe.gov/electromagnetic/papersbooks.html>
23. We define a *negative resistor* as any component or function or process that receives energy in unusable or disordered form and outputs that energy in usable, ordered form, where that is the *net* function performed. We specifically do not include "differential" negative resistors such as the tunnel diode, thyristor, and magnetron which dissipate and disorder more energy overall than they reorder in their "negative resistance" regimes.
24. T. E. Bearden, "Dark Matter or Dark Energy?", Journal of New Energy, 4(4), Spring 2000, p. 4-11. This paper is also carried on the aforementioned and listed U.S. Department of Energy website <http://www.ott.doe.gov/electromagnetic/papersbooks.html>.
25. T. E. Bearden, "The Unnecessary Energy Crisis: How to Solve It Quickly," Association of Distinguished American Scientists' Position Paper. This paper is also carried on Department of Energy website <http://www.ott.doe.gov/electromagnetic/papersbooks.html>.

26. T. E. Bearden, "Giant Negentropy from the Common Dipole," IC-2000 Proceedings, St. Petersburg, Russia, 2000 (in press). This paper is also carried on Department of Energy website <http://www.ott.doe.gov/electromagnetic/papersbooks.html>.
27. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Spontaneous Symmetry Breaking as the Source of the Electromagnetic Field," accepted by Foundations of Physics Letters (in press).
28. T. E. Bearden, "Extracting and Using Electromagnetic Energy from the Active Vacuum," in M.W. Evans (ed.), Contemporary Optics and Electrodynamics, Wylie, 29001, 3 Vols. (in press), comprising a Special Topic issue as vol. 114, I. Prigogine and S. A. Rice (series eds.), Advances in Chemical Physics, Wylie, ongoing.
29. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "On Whittaker's Representation of the Classical Electromagnetic Field in Vacuo, Part II: Potentials Without Fields," submitted to Foundations of Physics, 2000 (in review).
30. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "On Whittaker's F and G Fluxes, Part III: The Existence of Physical Longitudinal and Timelike Photons," Journal of New Energy, 4(3), Special Issue, Winter 1999, p. 68-71.
31. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Classical Electrodynamics Without the Lorentz Condition: Extracting Energy from the Vacuum," Physica Scripta, 61(5), may 2000, p. 513-517.
32. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Vacuum Energy flow and Poynting Theorem from Topology and Gauge Theory," submitted to Physica Scripta, 2000 (in review).
33. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "The Effect of Vacuum Energy on the Atomic Spectra," Foundations of Physics Letters, 13(3), June 2000, p. 289-296.
34. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Operator Derivation of the Gauge Invariant Proca and Lehnert Equations: Elimination of the Lorenz Condition," Foundations of Physics, 39(7), 2000, p. 1123 (in press).
35. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Energy Inherent in the Pure Gauge Vacuum," submitted to Physica Scripta, 2000 (in review).
36. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Electromagnetic Energy from Curved Space-Time," submitted to Optik, 2000 (in review).
37. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Energy from the Vacuum," submitted to Physica Scripta, 2000 (in review).
38. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "The Aharonov-Bohm Effect as the Basis of Electromagnetic Energy Inherent in the Vacuum," submitted to Optik, 2000 (in review).
39. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Longitudinal Modes in Vacuo of the Electromagnetic Field in Riemannian Spacetime," submitted to Optik, 2000 (in review).

40. M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "O(3) Electrodynamics from the Irreducible Representations of the Einstein Group," submitted to Optik, 2000 (in review).
41. "O(3) Electrodynamics," a review of 250 pages in M. W. Evans (Ed.), Contemporary Optics and Electrodynamics, a special topical issue of I. Prigogine and S. A. Rice (series Eds.), *Advances in Chemical Physics*, Wiley, New York, 2001, vol. 114(2) (in press), preprint of sections available on U.S. DOE website <http://www.ott.doe.gov/electromagnetic/>.
42. M. W. Evans, precise statement on the importance and implications of O(3) electrodynamics as a special subset of Sachs' unified field theory, 2000. Quoting: *"With respect to O(3): In 1992 it was shown (Physica B, 192, 227, 237 (1992)) that there exists a longitudinal component of free space electromagnetism, a component which is phaseless and propagates with the transverse components. Later this was developed into a Yang-Mills theory of electromagnetism with O(3) Lagrangian symmetry. This theory is homomorphic with Barrett's SU(2) electrodynamics and has far reaching implications in field theory in general. Recently it has been recognized to be a sub theory of the Sachs theory of electromagnetism, based on the irreducible representations of the Einstein group of general relativity. The Sachs theory produces a non-Abelian structure for the electromagnetic field tensor. The O(3) electromagnetism also has implications for the potential ability of extracting energy from the vacuum, and its topological implications are currently being investigated by Ranada. The O(3) electromagnetism has been tested extensively against empirical data, and succeeds in describing interferometric effects and physical optical effects where the conventional Maxwell Heaviside theory fails. Implicit in both the O(3) and Sachs theories of electromagnetism is the ability to extract electromagnetic energy from curved space-time."*
43. M. W. Evans and T. E. Bearden, "The Most General Form of the Vector Potential in Electrodynamics," submitted to Optik, 2000 (in review).
44. Fragments of Science: Festschrift for Mendel Sachs, Michael Ram (Ed.), World Scientific, Singapore, 1999.
45. Mendel Sachs, General Relativity and Matter, Reidel, 1982. Provides a great generalization of general relativity and electrodynamics reaching from the quarks and gluons to the entire universe. O(3) electrodynamics forms a very important subset of Sachs' theory, which means that general relativistic effects such as curved spacetime and EM energy from the curved spacetime vacuum can be engineered electromagnetically. The present invention does engineer curved spacetime to obtain excess energy from the active vacuum.
46. Mendel Sachs, "Relativistic Implications of Electromagnetic Field Theory," in T. W. Barrett and D. M. Grimes, eds., Advanced Electromagnetism, World Scientific, 1995, p. 551.
47. A. A. Logunov and Yu. M. Loskutov, "Nonuniqueness of the predictions of the general theory of relativity," Sov. J. Part. Nucl., 18(3), May-June 1987, p. 179-187.
48. D. Hilbert, Göttingen Nachrichten, Vol. 4, 1917, p. 21. Quoting: *"I assert... that for the general theory of relativity, i.e., in the case of general invariance of the Hamiltonian function, energy equations... corresponding to the energy equations in orthogonally invariant theories do not exist at all. I could even take this circumstance as the characteristic feature*

*of the general theory of relativity.*" As Logunov and Loskutov pointed out, unfortunately this remark of Hilbert was evidently not understood by his contemporaries, since neither Einstein himself nor other physicists recognized the fact that in general relativity conservation laws for energy, momentum, and angular momentum are in principle impossible.

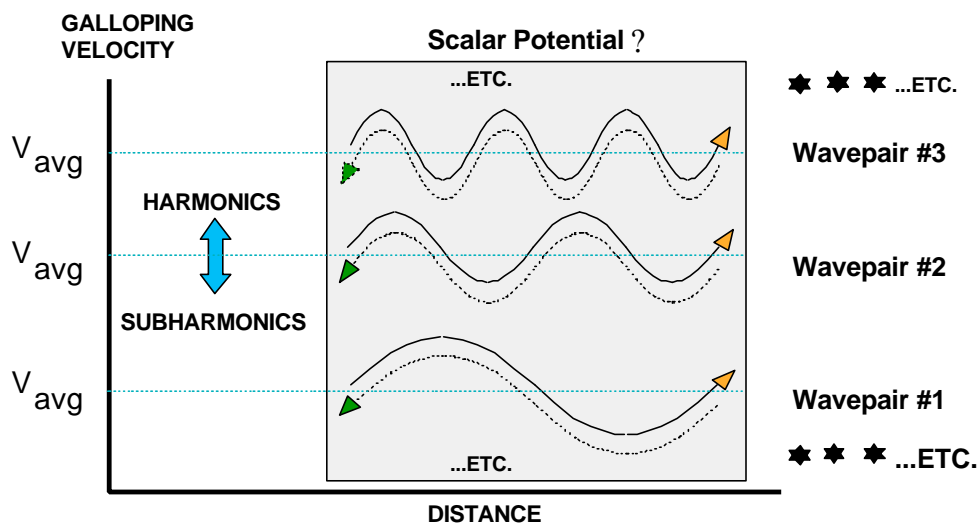
49. Henning F. Harmuth, "Extensions of Ohm's Law to Electric and Magnetic Dipole Currents," in Advanced Electromagnetism: Foundations, Theory and Applications, Eds. Terence W. Barrett and Dale M. Grimes, World Scientific, Singapore, 1995, p. 506-540.
50. J. R. Reitz, F. J. Milford, and R. W. Christy, "Foundations of Electromagnetic Theory, 3rd ed., Addison-Wesley, Reading, MA, 1980. For one thing, this book gives a thorough discussion of dipole currents, which is not covered well in most texts.
51. H. A. Lorentz, Vorlesungen über Theoretische Physik an der Universität Leiden, Vol. V, Die Maxwellsche Theorie (1900-1902), Akademische Verlagsgesellschaft M.B.H., Leipzig, 1931, "Die Energie im elektromagnetischen Feld," p. 179-186. Figure 25 on p. 185 shows the Lorentz concept of integrating the Poynting vector around a closed cylindrical surface surrounding a volumetric element. This is the procedure which arbitrarily selects only a small component of the energy flow associated with a circuit—specifically, the small Poynting component striking the surface charges and being diverged into the circuit to power it—and then treats that tiny component as the "entire" Poynting energy flow. Thereby Lorentz arbitrarily discarded all the vast Heaviside energy transport component which does not strike the circuit at all, and is just wasted.
52. Raymond C. Gelinas, "Apparatus and Method for Demodulation of a Modulated Curl-Free Magnetic Vector Potential Field," U.S. Patent No. 4,429,280, Jan. 31, 1984; — "Apparatus and method for Modulation of a Curl-Free Magnetic Vector Potential Field." U.S. Patent No. 4,429,288, Jan. 31, 1984; — "Apparatus and Method for Transfer of Information by Means of a Curl-Free Magnetic Vector Potential Field." U.S. Patent No. 4,432,098, Feb. 14, 1984; — "Apparatus and Method for Determination of a Receiving Device Relative to a Transmitting Device Utilizing a Curl-Free Magnetic Vector Potential Field." U.S. Patent No. 4,447,779, May 8, 1984; — "Apparatus and Method for Distance Determination Between a Receiving Device and a Transmitting Device Utilizing a Curl-Free Magnetic Vector Potential Field," U.S. Patent No. 4,605,897, 12 Aug 1986; — "Josephson Junction Interferometer Device for Detection of Curl-Free Magnetic Vector Potential Fields," U.S. Patent No. 4,491,795, 1 Jan 1985. All these Gelinas patents are assigned to Honeywell. All deal with communications, have no application to electrical power systems, do not use additional EM energy extracted from a permanent magnet and replenished by the vacuum, do not use curved local spacetime, do not use the giant negentropy process, do not function as open systems far from equilibrium in their vacuum exchange, symmetrically regauge themselves so that their excitation discharge is symmetrical and not asymmetrical, and produce only COP<1.0.
53. John D. Kraus, Electromagnetics, Fourth Edn., McGraw-Hill, New York, 1992. Figure 12-60, a and b, p. 578 shows a good drawing of the huge Poynting energy flow filling all space around the conductors, with almost all of it not intercepted, not diverged into the circuit, but just "wasted."



54. Daniel C. Cole and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," Physical Review E, 48(2), Aug. 1993, p. 1562-1565. Proves rigorously that there are no thermodynamics prohibitions against extracting and using energy from the active vacuum.
55. Ludvig Valentin Lorenz, "On the identity of the vibrations of light with electrical currents," Phil. Mag., Vol. 34, 1867, p. 287-301. In this paper Lorenz gave essentially what today is called the Lorentz symmetrical regauging.

## FIGURES

The following figures (1-23) illustrate the major principles, process and subprocesses, functions, and test results of the process and its prototype embodiments.

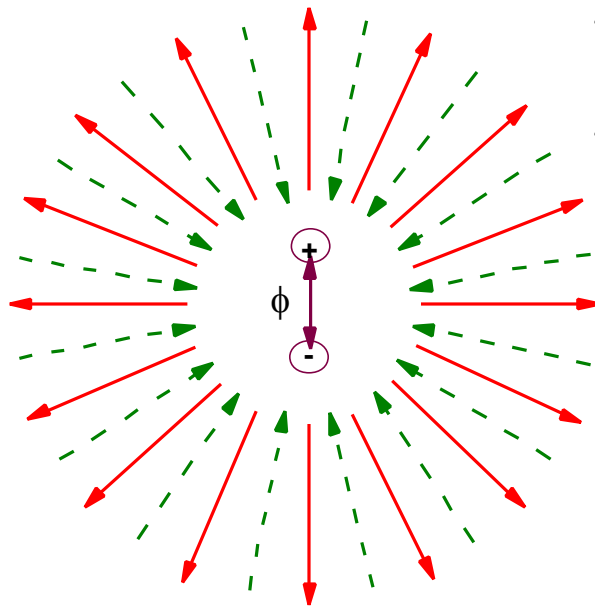


### The Structure Is:

- A harmonic set of longitudinal wavepairs.
- In each wavepair the two waves superpose spatially, but travel in opposite directions. The two are phase conjugates and time-reversed replicas of each other.
- The convergent wave set is in the imaginary plane, and hence is not observable.
- The charge's spin is 720 degrees, 320 in the real plane and 320 in the imaginary plane.
- Hence the charge receives the complex convergent EM energy, transduces it into real EM energy, and emits enormous energy at the speed of light in all directions.
- This produces the fields and potentials from the "source charge."

Figure 1. The scalar potential is a harmonic set of phase conjugate longitudinal EM waves.

Note: Decompose the potential between the end charges of the dipole



- Receives enormous EM energy in complex plane (similar to reactive power)
- Transduces it into real EM energy and emits it in all directions at the speed of light
- The emitted EM energy forms the fields and potentials and their energy, across space, from this "source dipole"

\* Basis established by E.T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," Math. Ann. 57, 333 (1903). Ignored since then.

#### LEGEND

→  
Outgoing real EM energy

← - - -  
Incoming complex EM energy

Figure 2. The dipole is a true negative resistor.

Broken 3-space symmetry initiates jump to 4-space symmetry between complex plane and real plane. Energy flow is now conserved in 4-space, but not in 3-space. This is the true negative resistor effect, and a negentropic reordering of the vacuum.

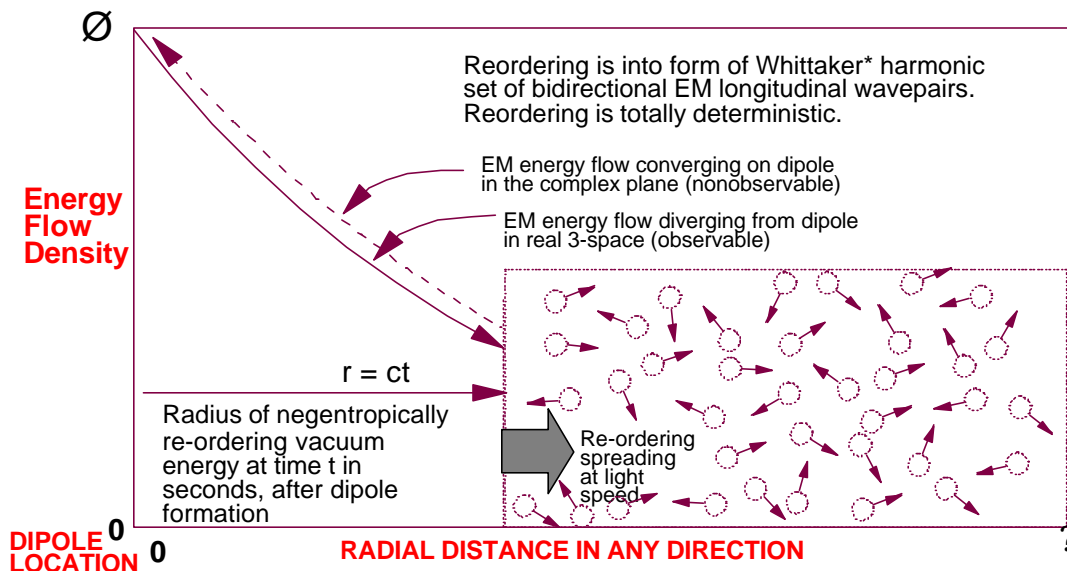


Figure 3. The dipole's broken 3-symmetry initiates a spreading giant negentropic reordering of a fraction of the vacuum's energy.

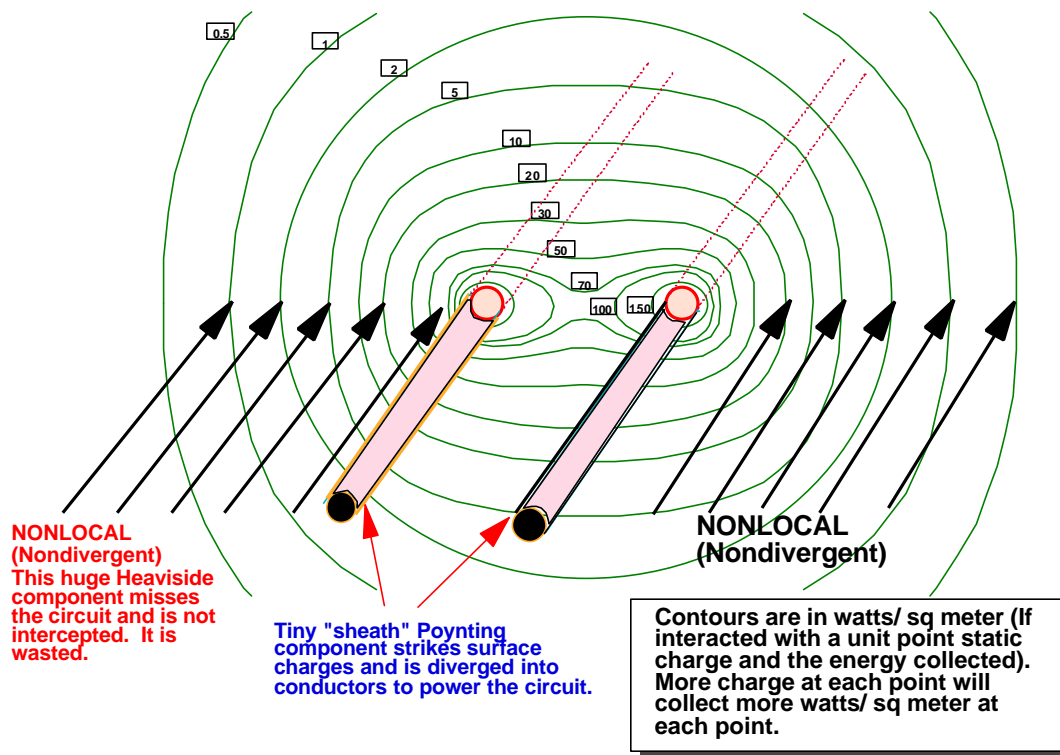


Figure 4. Energy flow contours surrounding a transmission line.

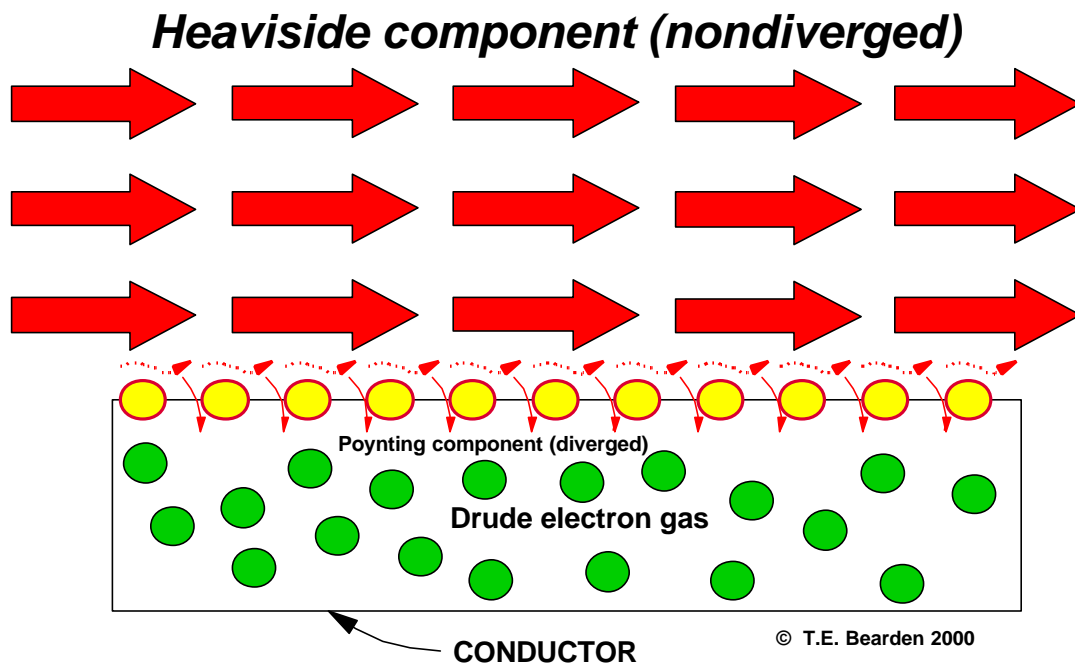


Figure 5. Heaviside and Poynting energy flow components. The Heaviside component is often 10 trillion times the Poynting component, but is simply wasted in ordinary single-pass energy flow circuits.

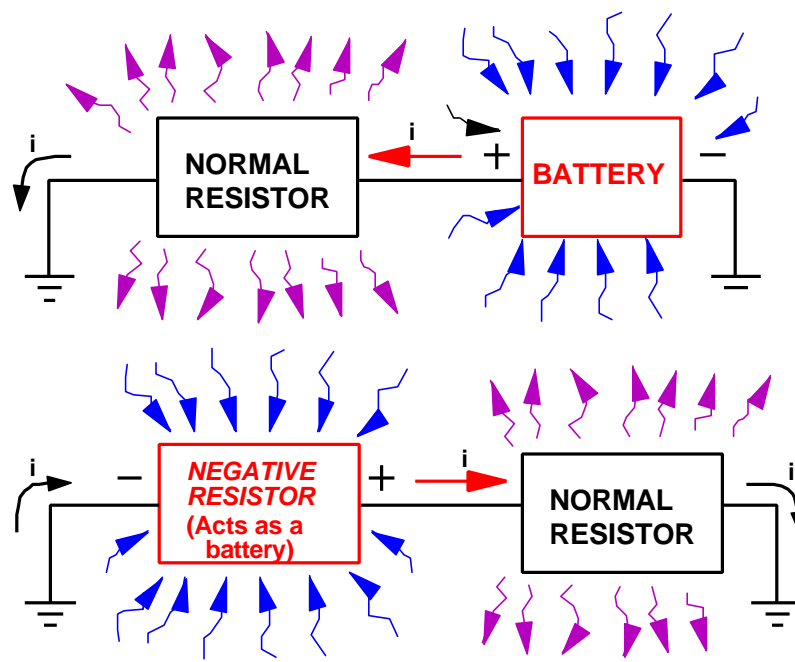
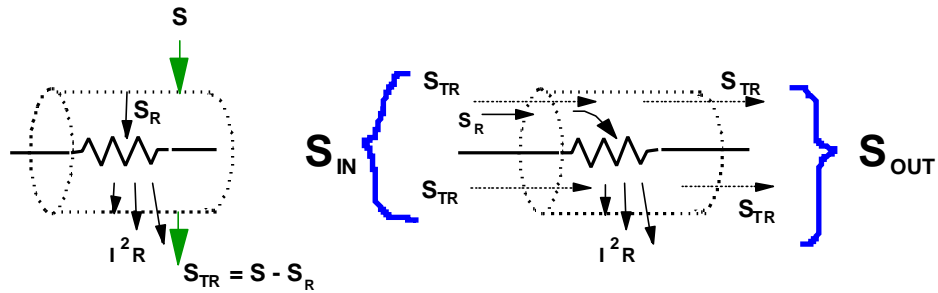


Figure 6. Negative resistance process vs. positive resistance process. A negative resistor receives energy in unusable form, transduces it, and outputs it in usable form. A positive resistor receives energy in usable form, and scatters it into unusable form.





1a. Lorentz surface integration.

1b. Actual  $S$  in and  $S$  out.

See Panofsky & Phillips,  
Classical Electricity and  
Magnetism, 2nd. edn.,  
Addison Wesley, 1962,  
p. 178-181.

Note: If the  $S$ -vector is integrated over the closed surface, then all nondiverged energy flow is zeroed, leaving only the very small component of the input  $S$ -flow that is powering the joule heating of the resistor. In short, only the small component of the  $S$ -flow that is equal in magnitude to the Poynting vector remains. This measures only the tiny portion of the  $S$ -flow that is intercepted and diverged into the conductors by their surface charges, powering the electrons and then dissipated out of the resistor as joule heating.

The Lorentz procedure arbitrarily discards the enormous Heaviside component that misses the circuit entirely and is wasted. This results in a non sequitur of first magnitude in energy flow theory .

Figure 7. Lorentz's integration trick to discard the enormous Heaviside non-diverged energy flow component.

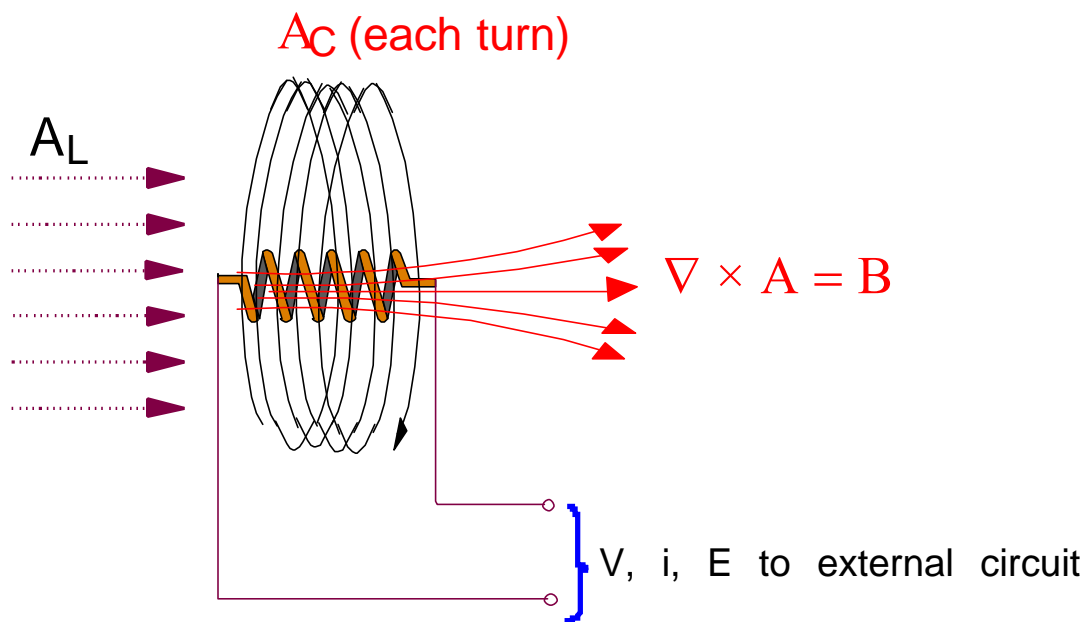
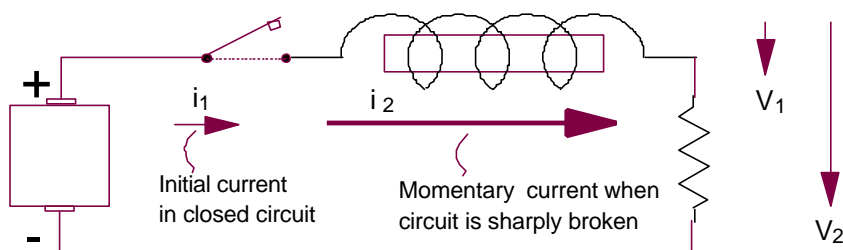
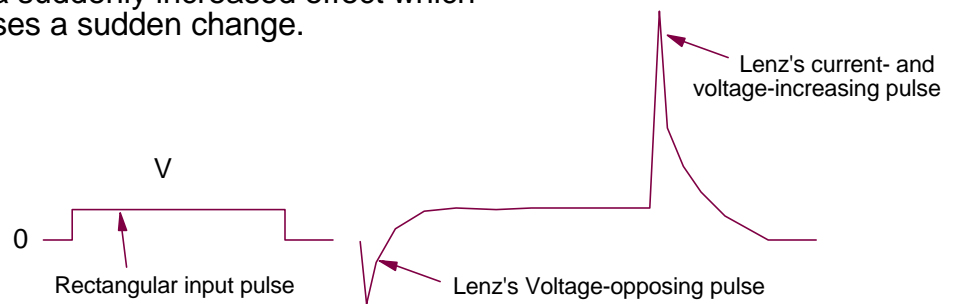


Figure 8. The  $A_L$  and  $A_C$  vector potentials, B-field, and  $\nabla \times$  operator. The  $\nabla \times$  operator operates on the  $A_C$  potential energy current, to produce normal B-field.

When a small current through the coil is suddenly broken, momentarily a surge of increased current and voltage ensues.



- 1a. Lenz's reaction is a suddenly increased effect which momentarily opposes a sudden change.



- 1b. Two successive Lenz's reactions to two interruptions by leading and trailing edges of a rectangular pulse.

Figure 9. Lenz's law reaction momentarily opposes a sudden change and increases the ongoing action which is to be changed.

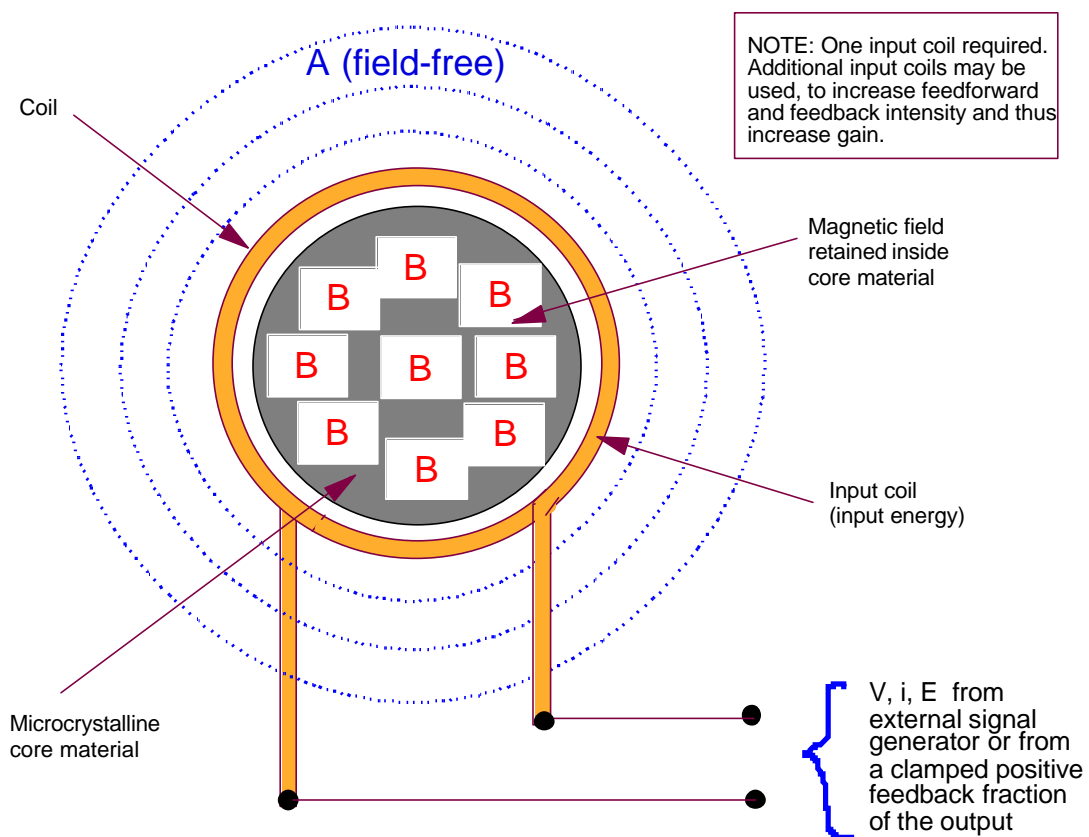


Figure 10. Input coil for either open-loop or closed-loop operation.

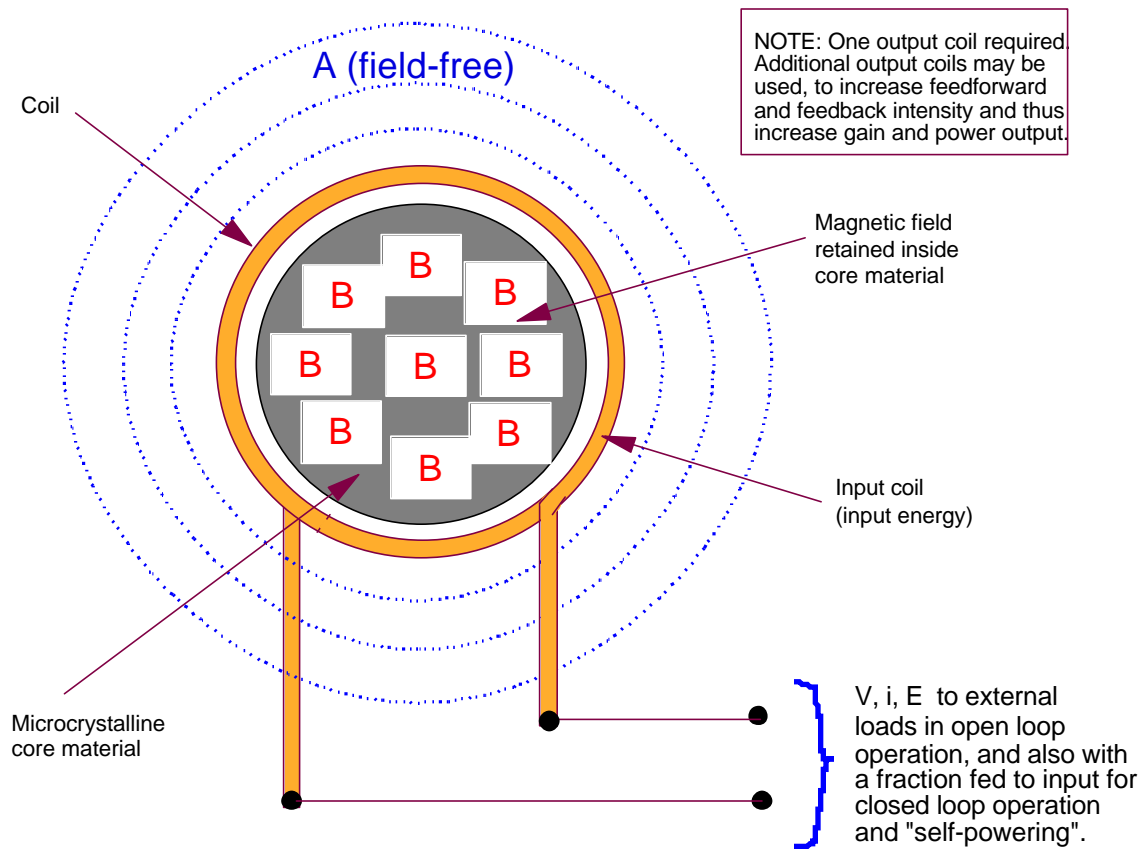


Figure 11. Output coil for either open-loop or closed-loop operation. Multiple output coils may be used in a variety of configurations.

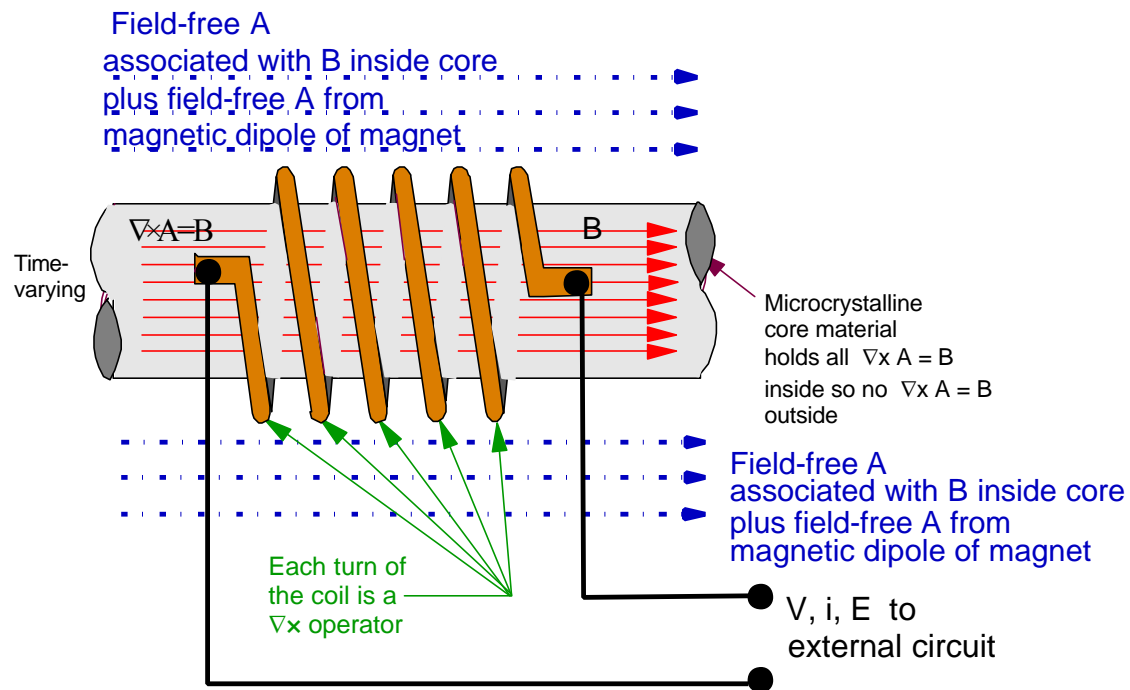


Figure 12. Basic scheme showing dual energy inputs and interactions with the coil. The output of each of these two interactions also "feeds forward" to the other interaction as an additional input to it, resulting in interactive "pingpong" of additional energy collection in the circuit, providing energy gain.

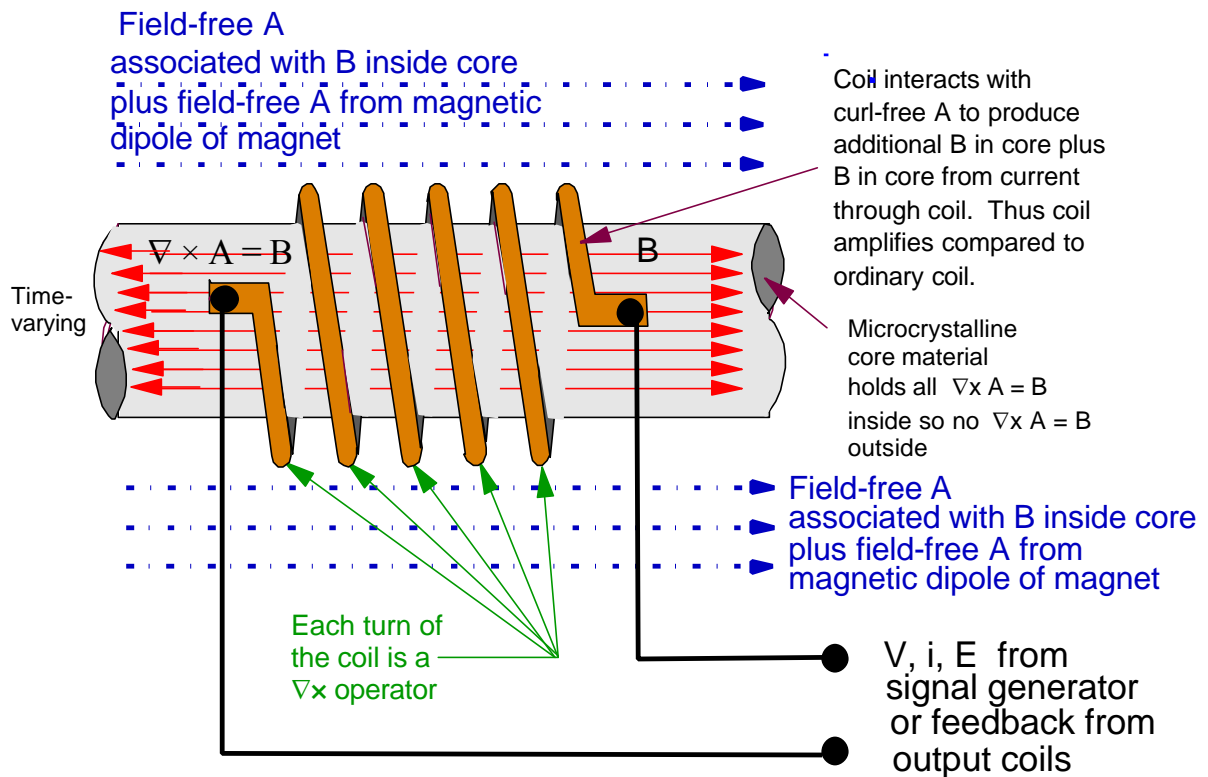


Figure 13. Dual energy inputs to the coil result in amplifying coil-core interaction. Not shown are the other feed loops providing extra curl-free  $A$  input from the surrounding space and extra  $B$  input in the core.



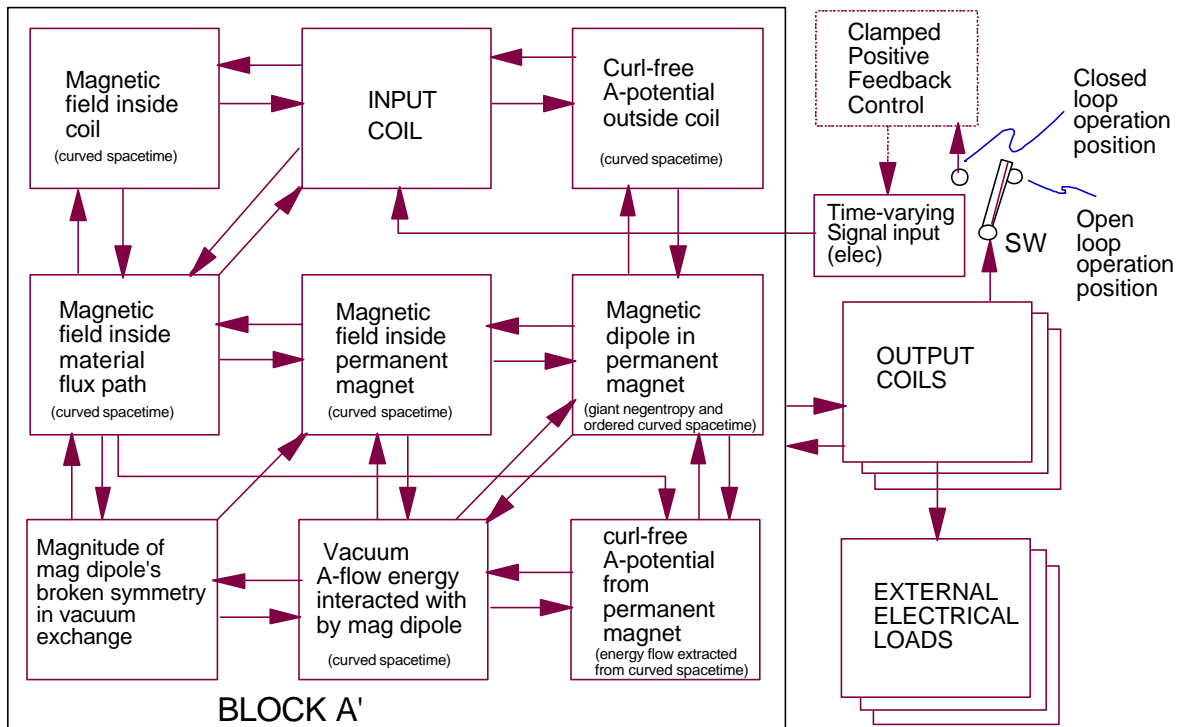


Figure 14. Energy gain process using feedforward and feedback subprocesses providing individual energy gain operations.

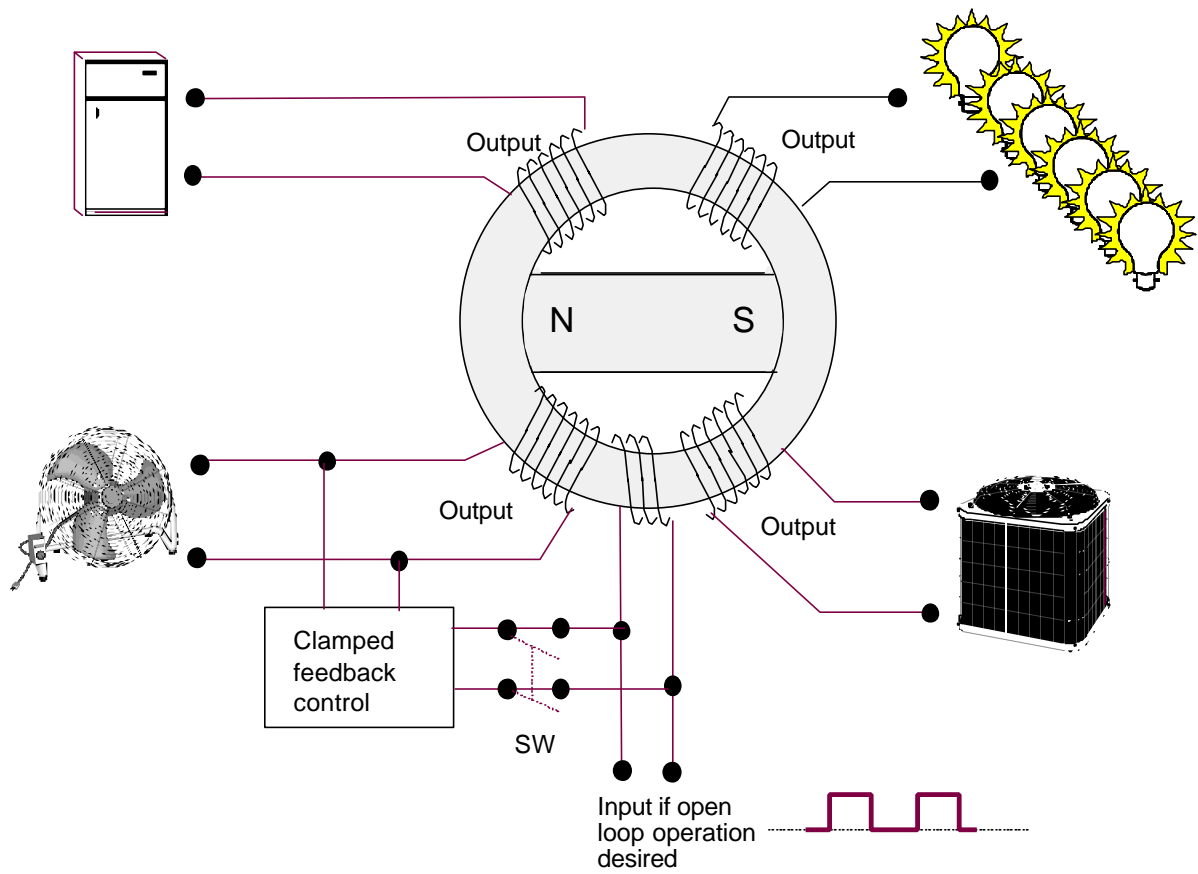


Figure 15. Typical embodiment system and application.

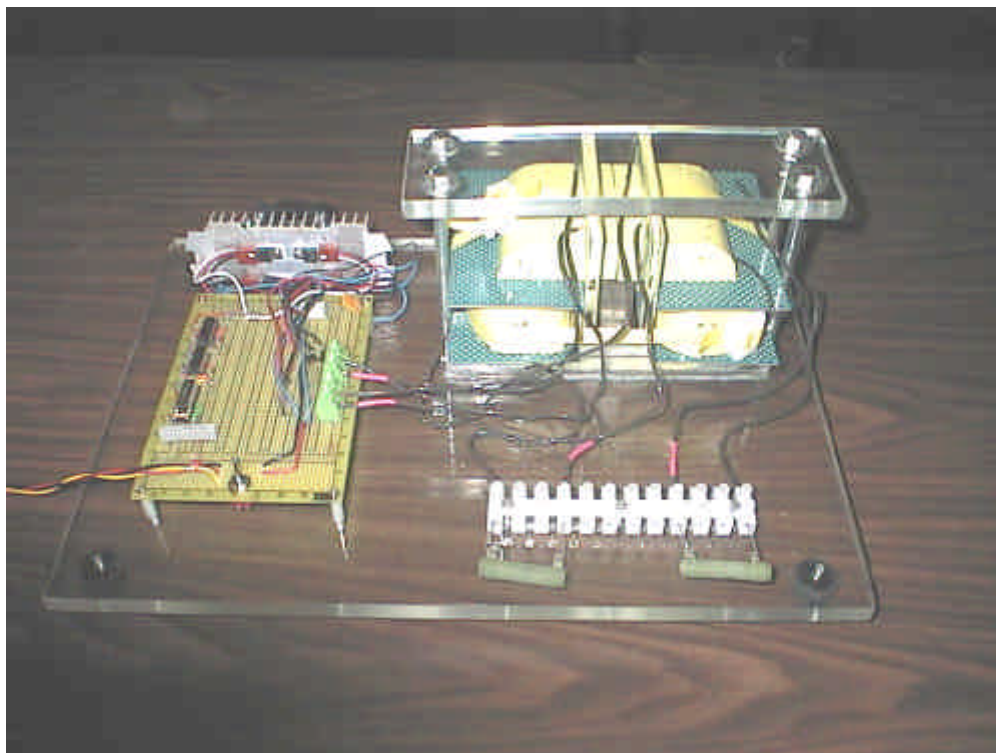


Figure 16. Motionless Electromagnetic Generator (laboratory experiment).

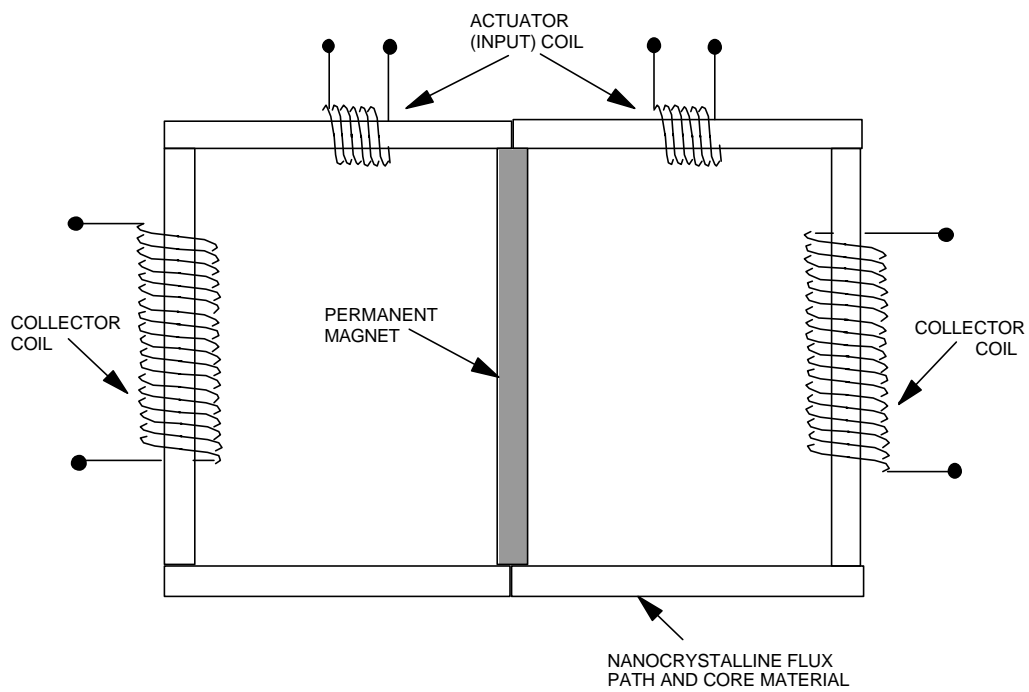


Figure 17. Diagram of laboratory test prototype.

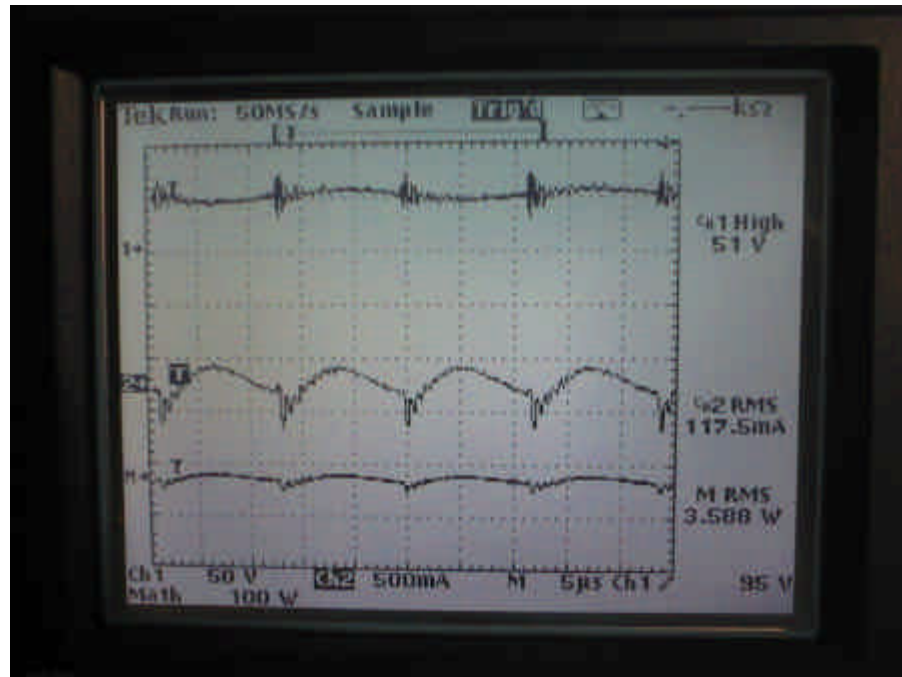


Figure 18. MEG Input measurements.

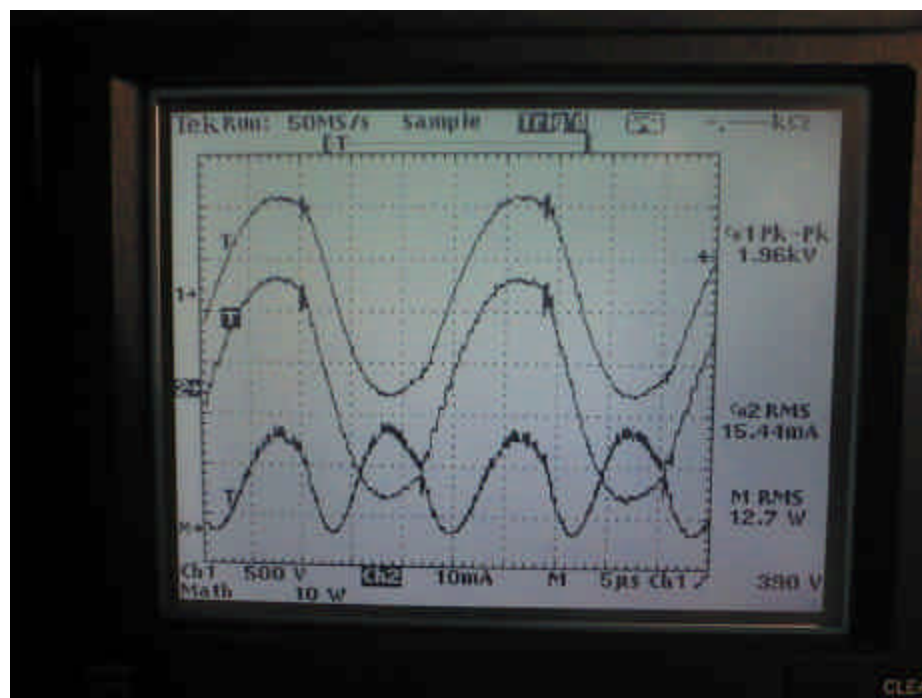


Figure 19. MEG output measurements.

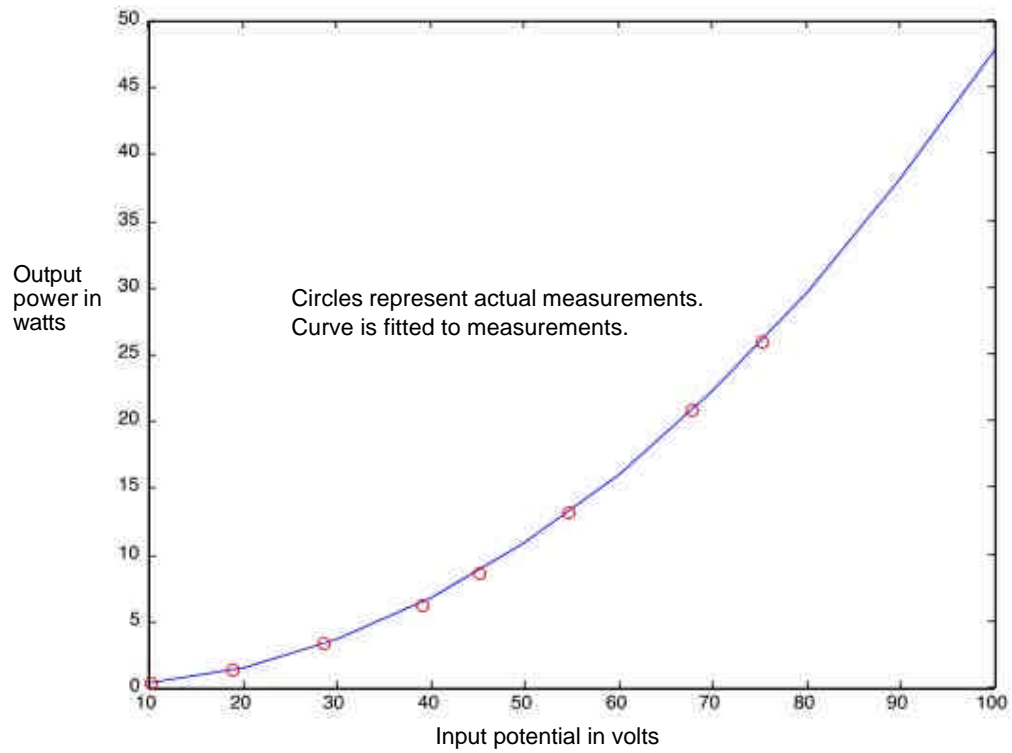


Figure 20. MEG prototype potentialization sensitivity.

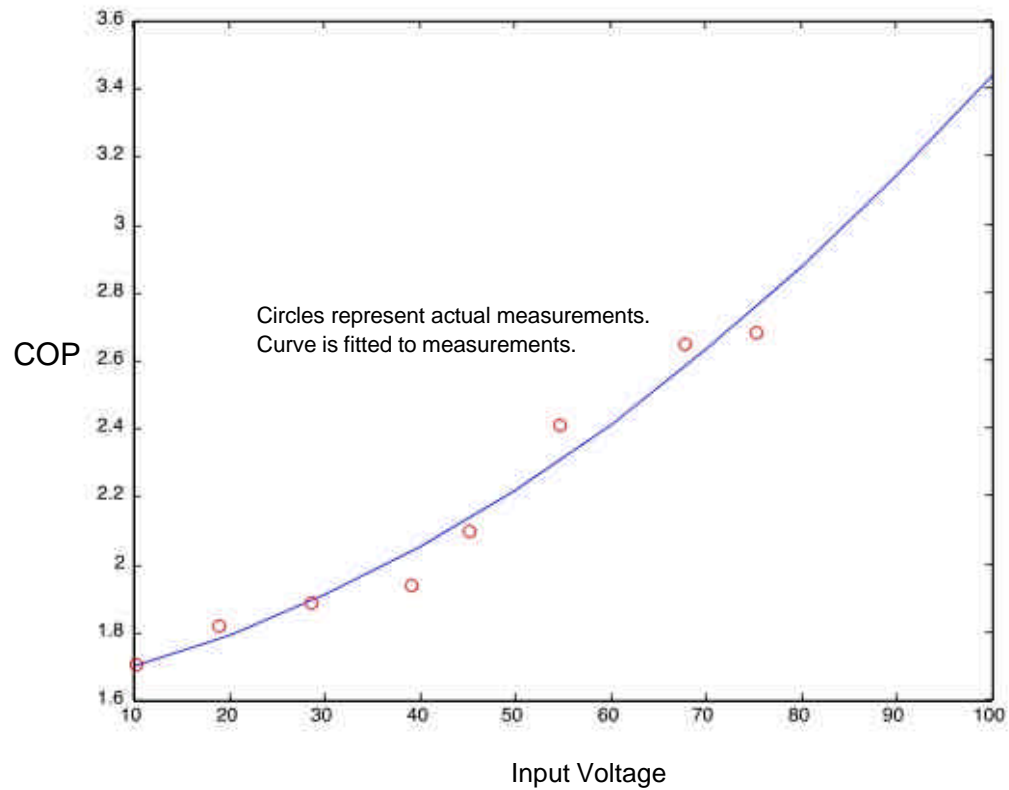


Figure 21. COP (power out versus power in), as a function of sensitivity (open loop prototype).

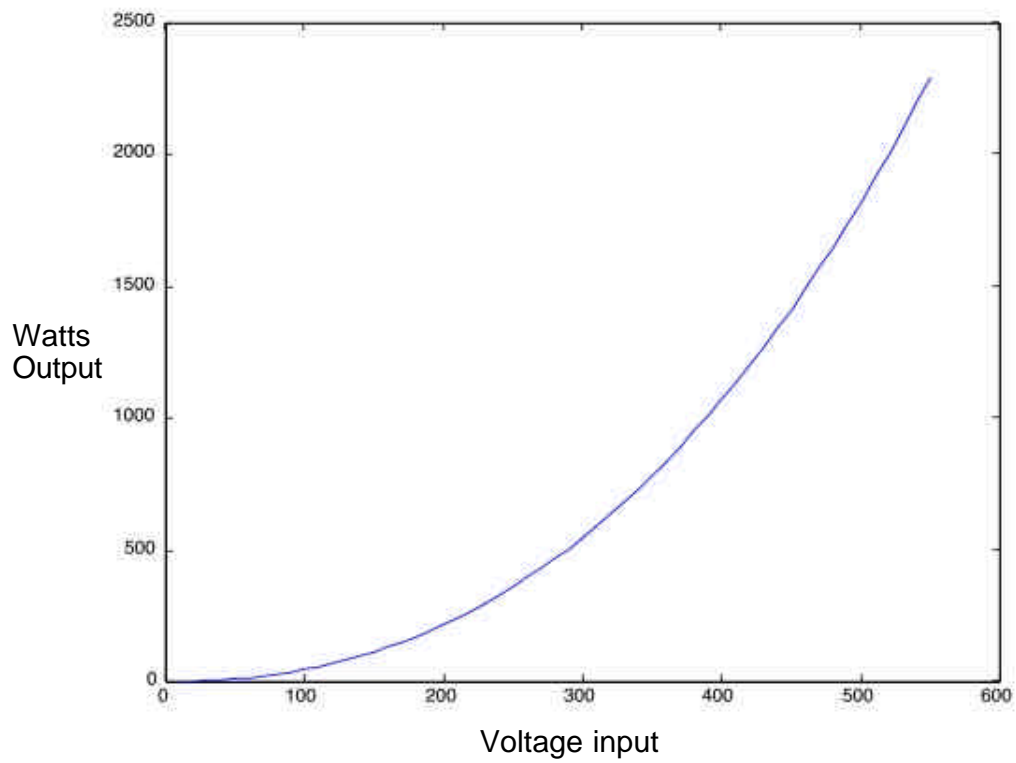


Figure 22. MEG projected sensitivity (test buildup in progress).

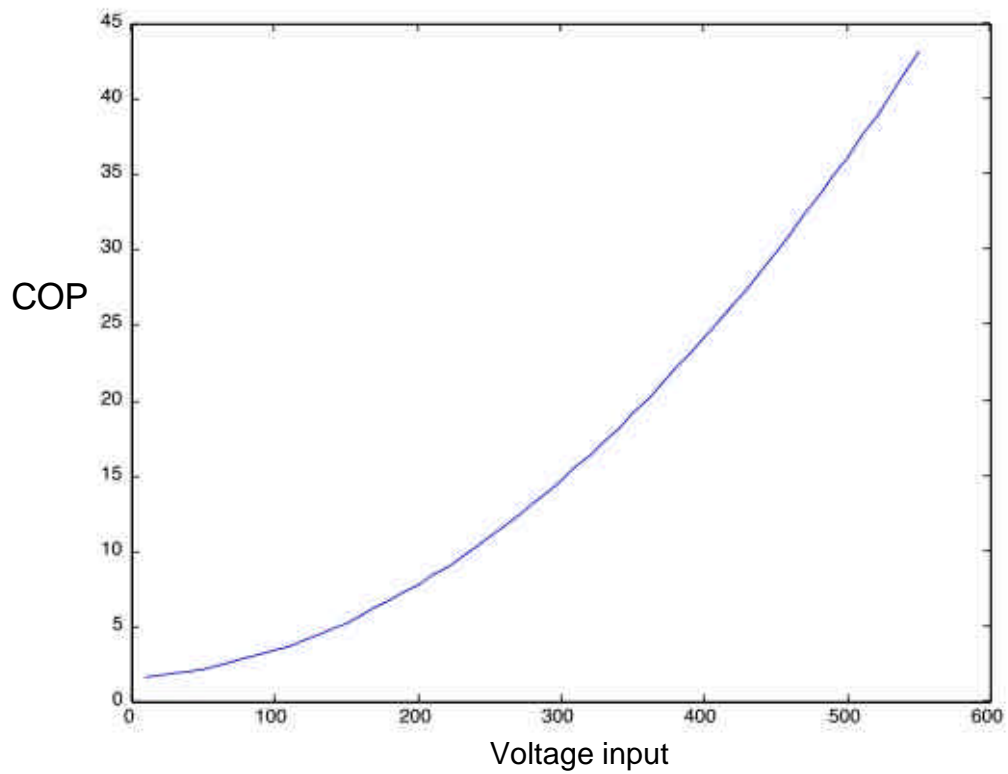


Figure 23. MEG projected COP versus input voltage (test buildup in process).